FEB. 3 1961

PETROLEUM WEEK

A McGRAW-HILL PUBLICATION

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Price 50 Cents

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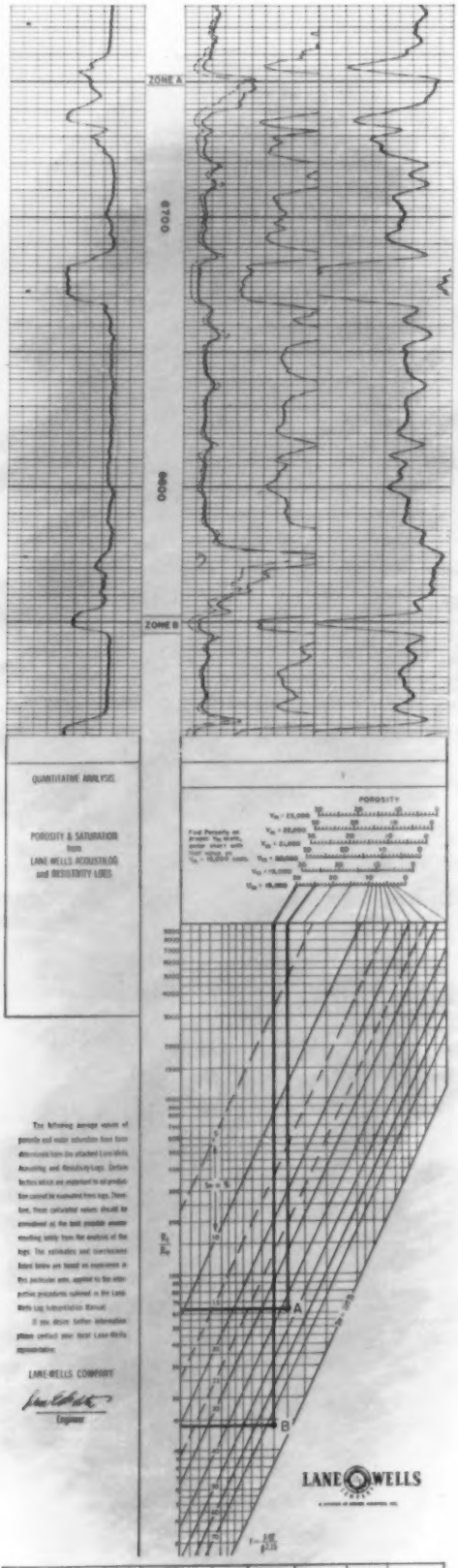

ZONE INTERVAL	NET PAY	R_t	R_w	$\frac{R_t}{R_w}$	AVERAGE POROSITY	AVERAGE WATER SAT.	POSS. PROD.	BBL. OIL IN PLACE/ACRE
6648 to 6651	3	5	0.08	62.5	25%	45%	OIL	3210
6848 to 6854	6	0.05	0.035	14.3	30%	80%	WATER	
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COMPONENT ALLOCATION— A KEY TO BETTER ROAD PERFORMANCE

Selecting gasoline components and matching them with the multiple choice of antiknocks now available presents the refiner with a complex but rewarding situation. It can, in many cases, produce octane numbers at low cost or give a better road performing fuel at the same octane level.

For example, the substitution of paraffinic base stocks for aromatic stocks, while using increased TEL content to control octane level, can provide the refiner with a gasoline having superior road octane number. With lower aromatics he also gets better deposit effect characteristics.

Higher TEL concentrations make the use of straight-run naphthas and natural gasolines attractive to refiners who blend premium gasoline almost entirely from light cracked stock and heavy reformate. Such gasolines are highly aromatic and extremely sensitive. The lower octane paraffins in the straight-run and natural gasoline components are insensitive and very responsive to TEL.

Adding TEL and replacing all or part of the cracked stocks not only will decrease sensitivity and improve Road octane, but will permit less severe reforming. Reducing reformer severity produces less aromatics, more paraffins, better TEL response, and lower blend sensitivity. In contrast, severe reforming and resulting highly aromatic stocks may cause deposit problems in high compression engines.

TEST RESULTS

Deposit effect tests on two gasolines—one high in TEL, low in aromatics (Fuel A)—the other low in TEL, high in aromatics (Fuel B)—were run in a passenger car engine at 11-to-1 compression ratio under city-suburban driving conditions. The test fuels had similar volatilities, sulfur contents, and were reasonably close in laboratory octane numbers—the high-TEL fuel having the characteristic lower sensitivity.

	FUEL A	FUEL B
TEL content, ml/gal.	4	2
% aromatics	24	40
% olefins	11	5
Theories of phosphorus	0.3	0.3
Research octane number	102.0	102.8
Motor octane number	93.5	92.3
Stabilized octane number requirement*	102.0	103.0
Octane number requirement increase	3.5	4.1
Surface ignition*, number of counts per hour	0.5	6.2
Rumble occurrence, % of accelerations	0	80

*CRC reference fuels

Notice that after deposits had stabilized, the engine run on Fuel A had lower octane requirement, less octane requirement increase, and fewer occurrences of surface ignition and rumble.

REMINDERS TO REFINERS

Antiknocks are your best octane improvement buy ... for with them you get a road bonus you can't get any other way ... a decrease in gasoline sensitivity ... increase in refinery flexibility ... and eliminate or delay capital investment.

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PETROLEUM WEEK

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INSIDE *Slant*

WHERE'S THE RESTRAINT?

What could be a record-breaking year for the oil industry can easily be turned into another of disappointment unless more restraint is shown by TOP management.

That restraint must come in the exertion of management's duty to manage refinery runs.

They make most encouraging statements and speeches on the need to curtail runs and adjust yields, but current operating statistics reflect the opposite.

Through the efforts of various state regulatory bodies, particularly Texas, and more sensible refinery runs, the inventory picture improved near the close of 1960.

But refinery runs no longer can be termed sensible. The better word now is excessive—just as it has been for the greater part of the past few years.

For example, refinery runs in December, 1960, averaged 8,005,000 b/d. The latest API figures show 8,357,000 b/d, or 352,000 b/d above the December average.

Refinery runs should be on the low, not high side. There's plenty of product around to supply even abnormal needs.

LeRoy Menzing
EDITOR

Views That Make News

Dear Sir:

I was somewhat surprised to read in your "Kennedy Undecided On Key Oil Jobs" [PW—Jan.13'61,p18] that I was "a retired vice-president of Richfield Oil Corp. (L.A.)" I hope this word does not get to my president, Charles S. Jones, who is under the impression, I believe, that I am still working for him. The day of my retirement may not be too far off, but it has not yet arrived.

May I also say that I was completely surprised that my name has been mentioned at all for any government office, and that nothing could be further away from my plans for the future, if any. It is gratifying, however, to find that some of my associates consider that I am an acceptable prospect.

DAVID E. DAY
Vice-president
Richfield Oil Corp. (L.A.)

Dear Sir:

Your article "Standards Gird for Market Battle" [PW—Dec.23'60,p11] contains one statement that may be a bit misleading to your readers.

Referring to the "Standard" companies operating in different sections of the U.S., it is stated: "Each is a jealous custodian of the 'Standard' rights and market privileges **spelled out by the Supreme Court decision.**"

Actually, the Court in the 1911 decree did not deal with the trademark question, and made no determination with respect to rights to use the "Standard" name. However, trademark rights in this country are acquired by user. The various Standard Oil companies whose stock was distributed to the public as a result of the suit continued to use the Standard Oil name in separate areas. Each thus acquired the exclusive right to use the name in those states, even against another Standard Oil company that had exclusive rights in adjoining territory.

I think the author might well conclude that most of these companies became a "jealous custodian" of trademark rights, in view of the litigation that has taken place over the years.

ROBERT H. SCHOLL
Director of public relations
Standard Oil Co. (N.J.)

Dear Sir:

Your article "Consumer Gas Bill To Be Proposed" [PW—Dec.30'60, p17] mentioned a report by the House Commerce Subcommittee, which suggested that regulation by the Federal Power Commission of the entire gas industry be tightened. The staff report also noted, in reference to the FPC's area pricing plan, that "there is a strong possibility that a court will find that area price fixing is an attempt to evade compliance with the City of Detroit decision." The article then states that the latter requires the commission to use cost as a starting point in producer rate regulation.

There are many attorneys practicing in this field who would object to the conclusions stated both by the staff report and by your article. It is the considered opinion of many attorneys that the City of Detroit decision does not apply to producer rate regulation. There is no decision of any court in any case, including the City of Detroit case, holding that the City of Detroit applied to producer rate regulation. The City of Detroit case applies only to natural gas produced by pipeline companies as company-owned gas. As a matter of fact, the FPC itself in its brief in the City of Detroit case stated ". . . This review [of the fair field price method] is not concerned with the method to be followed in fixing rates or prices at which producers shall sell their gas in the field." See the brief for the Federal Power Commission, pages 24 and 25 in City of Detroit vs. FPC, 230 F.2d 810.

STERLING W. STEVES
Tilley, Hyder & Law
Ft. Worth, Tex.

• The remarks in the story were those in the staff report and were not an opinion of Petroleum Week.

Dear Sir:

During the past year, many sympathetic references were made in your pages concerning rising costs being added to the other problems of this industry.

Some of these items were about the "burden" of wage and salary increases, including a most recent claim that ". . . wages have already been increased by 50% for salaried employees in many companies," [PW—Dec.30'60,p8].

What, may I ask, were you using as a base for this amazing statement, and why wasn't it shown? By flatly stating such data, one receives the erroneous impression that we have runaway payrolls out of line in comparison to other industries. As publishers of the invaluable Business Week, McGraw-Hill fully knows this to be a fallacy."

IRWIN B. HARRIS
Gulf Oil Corp.

• The figure should have read 5%; it was an error in transmission.

Dear Sir:

I can't resist replying to the platitude ascribed to M. J. Rathbone, of Standard Oil Co. (N.J.) "If we want a path beaten to our door, we need a better mousetrap—not a bigger one," which was quoted in your Views That Make News [PW—Dec.2'60, p4]. This is fine if we want a mousepath, but how about getting down to the real purpose of our stay on earth?

WILLIAM M. BORR
Wantagh, L.I.

Dear Sir:

I should like to take this opportunity to state my regrets at seeing the publication of an article by Dr. H. Zenor, "Oil May Be Found in Any Type Rocks" [PW—Dec.30'60,p26].

His publication of an article on the possibility of finding oil in the Precambrian and his method for explaining how it got there is based on the skimpiest geologic background. He has no training in this field, and to my knowledge, did not consult anyone in this department regarding the geology in this article. I want it known that I certainly do not subscribe to those views.

A. C. SPRENG
Associate professor of geology
School of Mines & Metallurgy
University of Missouri

Dear Sir:

Re: your editor's note in Views That Make News [PW—Jan.20'61, p4]. Prof. Zenor did more than continue our theory. He extrapolated it out into the never, never land.

KENNETH L. LANDIS
Professor of geology
University of Michigan

PETROLEUM WEEK *will publish each week comments from readers on timely, pertinent subjects. Such expressions are welcome.*

Address all such correspondence to LeRoy Menzing, Editor, PETROLEUM WEEK, *330 W. 42nd St., New York 36, N.Y.*

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THE QUALITY OF THINKING

From an almost unlimited scope of thought, Leonardo da Vinci brought forth a stream of inventions which — in modern form — are in use today. However, Leonardo's greatest contribution was simply the triumph of creative thought applied to practical results. His work will stand for all time as proof that the appraisal of quality applies to thinking as well as to tangible objects and to visible or audible processes.

In a related sense, the quality of engineering is measured by results. And it is by results alone that the minds responsible for an engineering project can be evaluated. When you check the record of Brown & Root's engineering through the years, the high quality of thinking is self-evident. Customer satisfaction from greater efficiency at lower costs has built a worldwide reputation for engineering and construction by Brown & Root.

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60-Second Summary / WHAT'S HAPPENING IN OIL

AT-A-GLANCE PETROLEUM WEEK

February 3, 1961

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Look for a big surge in development drilling in Alaska this year. One major plans to drill 36 tests in the Swanson River area alone—more than have been drilled there since the field was opened in 1957. . . . p. 22

•

Are you getting the most out of your corporate philanthropy? Shell Oil Co.'s new "design for giving" contains some advanced thinking on the art of giving away millions of dollars. . . . p. 36

•

Industry observers are being extremely cautious in their forecasts, but all signs point to better times ahead for drillers. It is felt that the current decline bottomed out in 1960. . . . p. 13

•

Natural gas regulation by the Federal Power Commission may be headed for a tightening up. President Kennedy's two FPC appointees approve of the Supreme Court's end-use control decision, and they also feel that faster action is needed on decisions. . . . p. 15

•

Automation of batch processing in refineries and petrochemical plants can produce substantial savings—as much as 20% to 25%, according to an engineering specialist. It's a technique for programming physical readiness rather than a time schedule. . . . p. 41

•

Scores of manufacturers are trying to perfect auto accessory devices that will kill smog-forming exhaust fumes. California's new smog law is spurring the search. . . . p. 54

•

The Supreme Court's end-use ruling on direct gas sales won't deter backers of a proposed Texas-Mexico-California line. The need for gas as boiler fuel is strong in California, they claim. . . . p. 16

•

Crude production in the Middle East continues to climb. Output in 1960 rose 14.3%, as nearly all producing areas set new records. . . . p. 46

•

Pipelines can now be welded automatically in the field. Esso Research & Engineering has come up with a "process" that automates this heretofore manual operation. . . . p. 50

•

East Texas' Fairway area is occasioning much interest these days. A heavy drilling play is in the making, and it could develop into the biggest play in East Texas in years. . . . p. 30

Up to the Minute / SIGNIFICANT LATE NEWS

AT-A-GLANCE PETROLEUM WEEK Copyright

February 3, 1961

President Kennedy at midweek was expected to name Paul Rand Dixon to be chairman of the Federal Trade Commission. Dixon, former chief counsel of Sen. Estes Kefauver's antitrust and monopoly subcommittee, is no stranger to the oil industry. He was a fighter for Kefauver's old S-11 bill that would have prohibited "good faith" defense in pricing.

The President was also expected to name John Kelly of New Mexico as Interior's assistant secretary for mineral resources. He was a former state geologist and is backed by Sen. Clinton P. Anderson (D., N. M.).

•

Domestic refinery runs reached a new high of 8,401,000 b/d last week, 44,000 b/d over the previous week and topping the previous peak set in January, 1960, by 5,000 b/d. The strong demand for heating oil resulted in a 7.6-million bbl. decline in distillate stocks. Last week's yield of distillate nosed up slightly to 25.5% of throughput, the highest since early 1959.

•

Western oil men were wondering this week if the Soviet Union has over-extended itself in its invasion of international oil markets. Their speculation stems from Communist China's spot purchase of 460,000 bbl. of gasoline and diesel fuel from a Royal Dutch Shell affiliate. Also there have been trade feelers between Red China and a Japanese firm.

Communist China has made previous petroleum purchases outside the Soviet orbit in recent years, but only in small quantities. It is dependent primarily upon the U.S.S.R for its source of oil imports. A Shell official said his company "along with others have over the past year supplied a few lots of low octane gasoline and diesel fuel to China." U. S. firms have been barred from trading with Red China since late 1950. Western European countries ended their embargo in 1957, except for certain strategic materials.

•

Leonard Crude Oil Co. cut its crude postings in two Michigan fields this week. Its flat price in the Dwight field was trimmed by 15¢ to $2.80 a bbl. and its price for Wisner crude was reduced 10¢ to $2.85 a bbl., both effective Feb. 1.

•

January's domestic drilling operations were the lowest in 14 years. Reports of Hughes Tool Co. show an average of only 1,617 rotary rigs operated during the month, 75 rigs fewer than last year, and the smallest number making hole in the first month of the year since 1947.

•

Harry A. Jarvis was named president of Creole Petroleum Corp. this week. He succeeds Arthur T. Proudfit, who resigned the presidency but will continue as a director until Mar. 1 when he will retire. Jarvis, who has been executive vice-president of the Standard Oil Co. (N.J.) affiliate in Venezuela, will be succeeded in that post by Leo E. Lowry.

Today's Discoveries Are Yesterday's Dry Holes

Welex's Simplified Logging Program today logs many discovery wells in areas once called "dry hole" country.

Thanks to modern techniques, such as the Welex program, you can now pinpoint and produce profitably many pay sands, ignored by old-fashioned logging tools a few years ago.

The Welex Simplified Logging Program does this for you ACCURATELY and FAST.

Introduced to eliminate confusion and complicated computations, the Welex program within minutes gives you the answers to the two main questions — WHAT IS THE POROSITY and WHAT IS THE FLUID SATURATION.

Based on only two factors — type of porosity present and drilling mud/formation water salinity contrast — the Welex Simplified Logging Program makes selection of the BEST LOGGING PROGRAM for every well easy, as shown by the diagram here.

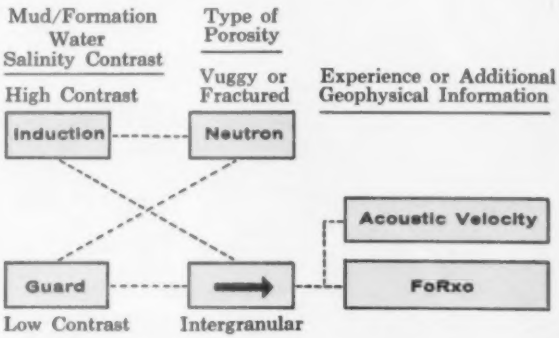
The addition of Welex's Acoustic Velocity Log to the program makes even more information available to you. The Acoustic Velocity Log, with Caliper of course, is the ideal choice in:

1. Formations where experience or past performance indicates that its porosity values are more accurate.

2. Areas where velocity data is desired for geophysical purposes.

As with the Welex FoRxo and Neutron Logs, you can read porosity values directly off the Acoustic Velocity Log. When run in conjunction with the Welex Induction or Guard Log, your most important question — WILL THE WELL PRODUCE? — can be answered in minutes by using the Simplified Interpretation Charts or "pigtails" printed right on the log.

The Welex Simplified Logging Program IS THE ANSWER for your well.



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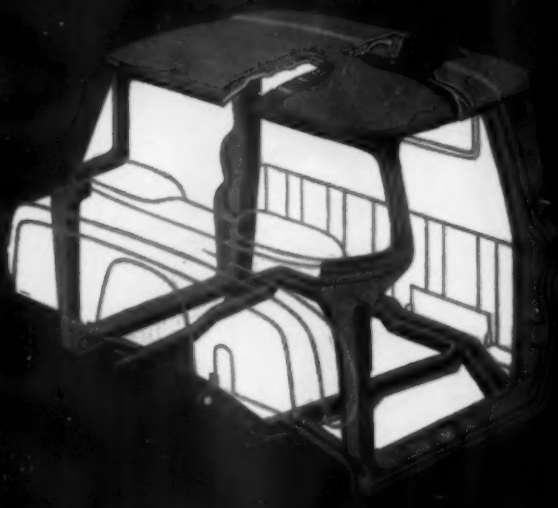
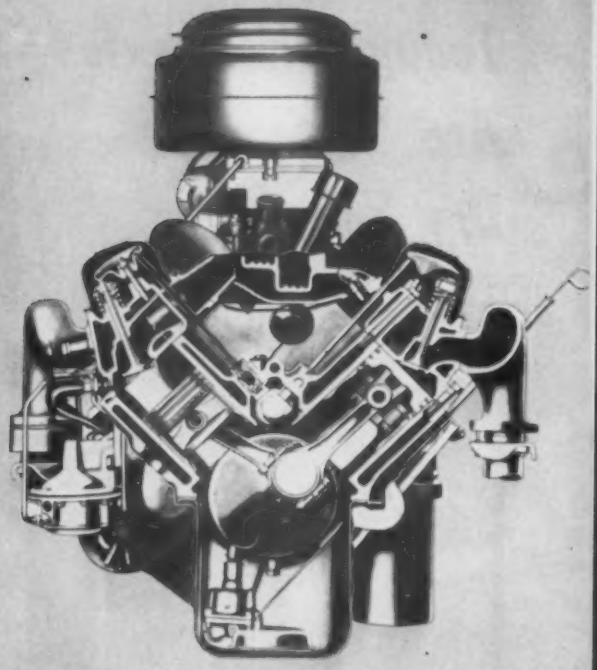


1 Extra strength where it counts gives Chevy cabs rock-solid rigidity to stay in shape years longer.



2 Chevy's powerful, efficient Taskmaster V8 combines big-truck might and muscle with top operating economy.

3 Independent Front Suspension with "walking wheel" action paves the way to bigger earnings with a smoother ride and reduced maintenance expense.

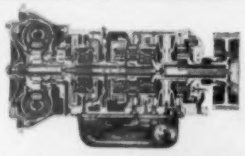
DEEP-DOWN DURABILITY SAVES YOUR DOLLARS IN 1961 CHEVROLET MEDIUM-DUTY TRUCKS

Here are Chevy components that add to tough-truck durability and earning ability; the *strong* reasons why a Chevrolet middleweight can take plenty of punishment—and keep on taking it. Here's why these rough-and-ready haulers squeeze bonus earnings out of tight budgets!

1 Take a look at the Chevy cab (pictured at left). It's built *solidly* to take any poundings your rough-and-tumble runs can throw its way; to stay in shape for years, lengthen effective truck working life and minimize maintenance expense. Notice the husky longitudinal sills that reinforce the cab underbody to reduce vibration and provide a solid foundation for cab sheet metal. Check the extra sturdy door openings with box-section pillars and sills to keep doors weather-tight and in lasting alignment. See how the husky box-section pillars support the rigid, double-walled roof panel for greater safety and maximum cab strength. (And this cab is just as *comfortable* as it is rugged!)

2 More evidence of Chevy's deep-down strength and toughness can be found beneath the hood. There you'll find the *261-cubic-inch Jobmaster 6* —a work-proved dollar-saver. Its sturdy components—forged steel crankshaft, high-alloy inlet valves, precision bearings, hard-faced exhaust valves with Rotocoils, all-weather electrical system and many more—are solid assurance of maximum efficiency and economy. Or the big *283-cubic-inch Taskmaster V8* illustrated at left (optional at extra cost) to supply plenty of torque to move maximum payloads with minimum strain or wear. Low maintenance costs stem from features like aluminized high-alloy inlet valves, hard-faced exhaust valves with Rotocoils and Moraine 400 precision bearings.

3 Chevy's bump-beating Independent Front Suspension system provides still another reason for dollar-saving durability. Tough, friction-free torsion springs cushion the ride; ruggedly built control arms guide each wheel to give sure, stable handling; sturdy, custom-tailored shock absorbers further reduce road shock and offer maximum ride control. The result is a new kind of smooth truck ride that lengthens truck life; cuts wear and tear to reduce maintenance. These reasons for ruggedness go on and on to help reduce your costs. They're all the result of Chevy's *deep-down durability*. See your dealer about it soon. . . . Chevrolet Division of General Motors, Detroit 2, Michigan.



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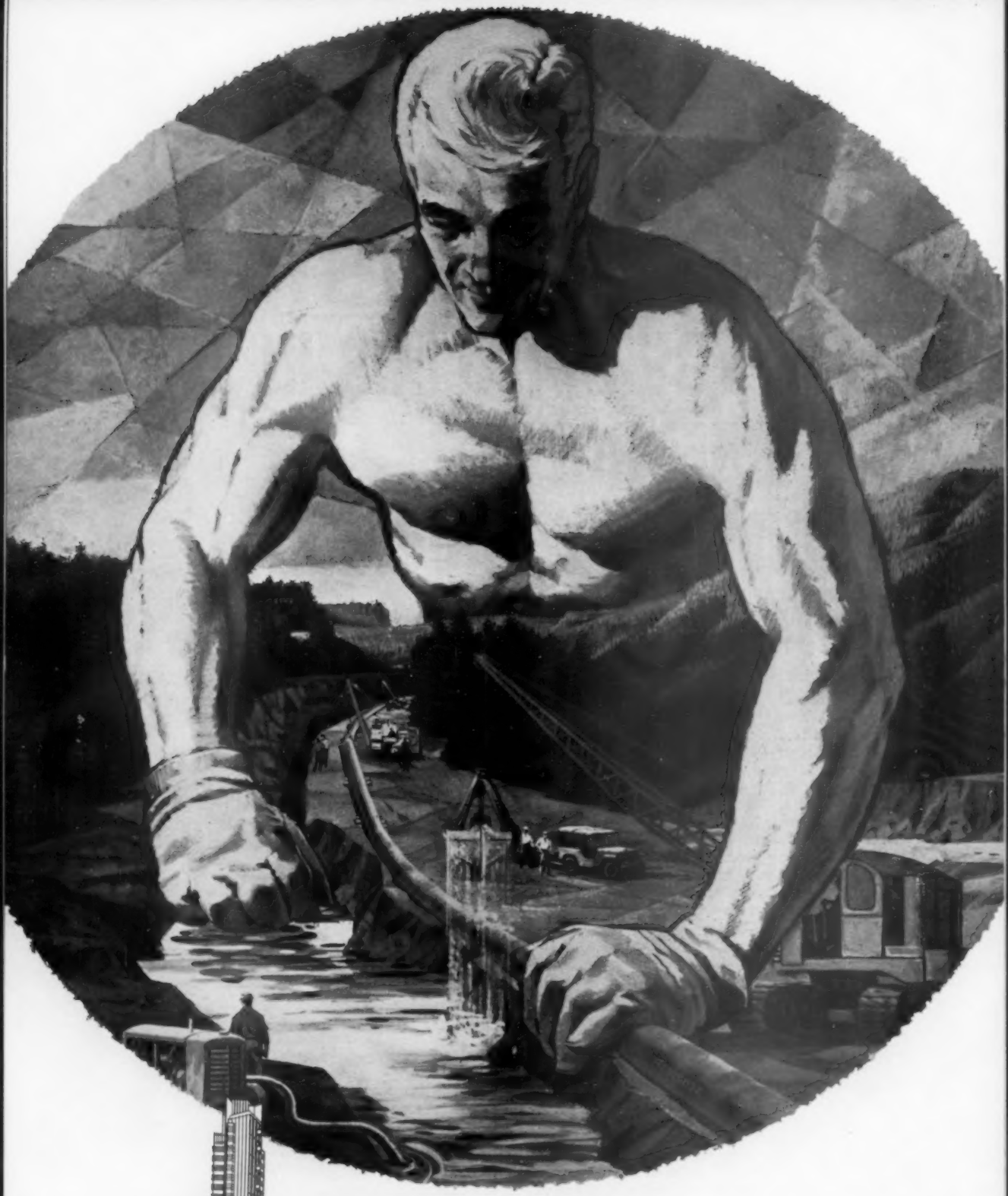

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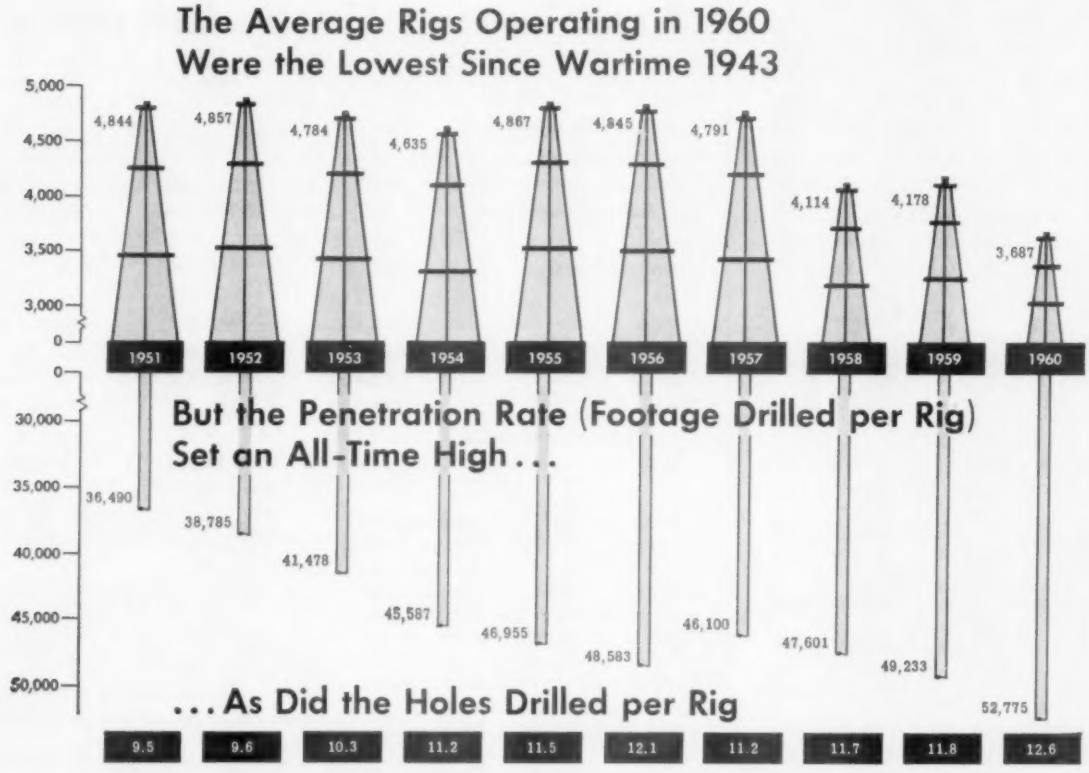


Drilling May Have 'Bottomed Out'

Indications are that the current decline in drilling reached its low point in 1960 and increased domestic production in 1961 could start an upward trend.

It may be late in the year before any material improvement is noticed, and the upturn probably will be slight. Industry observers are being extremely cautious in their forecasts of the drilling outlook. But they are somewhat optimistic.

Warren L. Baker, executive vice-president of the American Assn. of Oilwell Drilling Contractors, predicts that "about the same number of holes will be drilled in 1961 as in 1960, with perhaps a shade more footage."

And he adds: "We reached the bottom of the decline in drilling in 1960. All forecasts for 1961 show that domestic crude production will increase approximately 200,000 b/d over 1960. The primary reason for such an increase is that the industry cannot continue to live off inventories to the degree that it has in recent years.

"The increased production will mean $220-million more gross income for domestic producers. That rise," Baker observed, "will offset the economy moves in drilling cutbacks by some companies and the wider spacing trends. Another offsetting factor is that some companies are faced with substantial offshore lease expenditures in 1961.

A similar indication of a turnaround of the downward trend in drilling comes from oil well servicing contractors.

Several interviewed at the recent annual meeting of the Assn. of Oilwell Servicing Contractors in Dallas commented that the "bottom of the downturn" may have been reached in mid-1960. "Business picked up in the last few months of the year," one contractor noted. He added: "From what I now hear of current drilling plans, 1961 could be a fair year."

Jimmy W. Wilkins, vice-president of Permian Servicing Co., and outgoing president of the association, said he anticipated "an over-all 8% increase in the servicing business this year. But it will vary from area to area," he added.

Last year's sharp decline in drilling activity—an eight-year low in completions and footage—had one bright note: Drilling efficiency reached an all-time high.

Based on the average of 3,687 rotary and cable tool rigs operating, as reported by the drilling contractors association, and the total footage drilled, the footage drilled per active rig reached a new peak of 52,775 ft. (chart, above).

That rate of penetration, equivalent to 12.6 holes per active rig, represented a 7.2% gain over 1959 and a 44.6% increase in the past ten years.

The improvement in efficiency does point to one dark trend: Fewer rigs are required to handle the drilling requirements.

The 46,750 holes drilled totaling 190.7-million ft. was the smallest since 1952. The average depth per hole drilled last year of 4,079 ft. was slight-

The Trend of Work by Drilling Contractors

Year	% of Work	New wells drilled	Footage drilled
1950	88%	38,086	140,173,000
1951	90	40,064	155,098,000
1952	91	41,697	170,343,000
1953	91	44,844	180,943,000
1954	92	49,616	201,467,000
1955	92	52,147	208,168,000
1956	93	54,089	217,529,000
1957	93	50,069	206,367,000
1958	94	46,164	185,541,000
1959	94	47,840	195,574,000
1960	95	44,413	181,167,000

ly below the previous year and less than the average in 1952.

The average number of total rigs operating during the year was the lowest since wartime 1943.

The peak rig activity last year was reached at the end of January with 3,919 in service and the low point came near the end of October with 3,482 rigs operating.

In actual hole-making, the fourth quarter was the most active with the drilling of 49.1-million ft.

There are also indications that with an upturn in drilling, many contractors would have to make substantial purchases of new equipment.

AAODC's Baker commented that the continued decline in drilling contractor income in 1960 intensified the contracting industry's already serious economic squeeze between high costs and low income rates.

The average price per foot received by contractors, he noted, was $4.11 in 1960, exclusive of day work charges. That compared with $4.33 in 1959, $4.27 in 1958, and $4.51 in 1957.

"Current contractor income," Baker said, "simply is not sufficient to permit recovery of new equipment costs. For this reason, contractor purchases of new rig equipment have been far below normal replacement levels for several years.

"This situation means," he added, "the drilling equipment being operated in the U.S. today is older and of poorer quality than desirable, and creates a fear that contractors' ability to cut hole may begin to show signs of deteriorating."

He noted that the prices of major equipment items used in drilling showed no appreciable gain in 1960 over 1959, but the prices still range from 20% to 30% on most items over 1954.

Reports of 1960 Oil Earnings Are Showing Mostly Increases

Company	1960 Net Income (thousands of dollars)	1959 Net Income	% Change
California Standard	266,000	253,599	+ 4.9
Commonwealth	6,618	3,135	+111.1
Continental	61,200	60,300	+ 1.6
International Petroleum	30,000	23,900	+ 25.5
Imperial	61,000	54,525	+ 11.9
Jersey Standard	688,000	630,000	+ 9.2
Ohio	39,215	38,633	+ 1.5
Phillips	112,400	104,639	+ 7.4
Shell	144,580	147,418	— 1.9
Sinclair	52,400	45,000	+ 16.4
Texaco	391,750	354,346	+ 10.6
Texas Pacific Coal & Oil	7,779	7,197	+ 8.1
Union	34,400	27,515	+ 25.0

Early reports show near-record oil earnings in 1960. The moral to be read in company ledgers: Even a little moderation can go a long way in putting the industry on firmer financial footing.

Last year got off to a poor start. Lack of restraint in industry operations had undermined product prices through most of the first half. This, coupled with lower-than-expected demand, held profit margins down.

The good showing for 1960 as a whole was almost entirely due to second-half earnings. The tight supply of crude forced cutbacks in refinery runs, bringing supply closer in line with demand.

Crude throughput during the second half of 1960 averaged just slightly over the 8-million b/d that the industry considers "desirable" level. Stocks were cut and prices firmed.

Three companies so far have reported all-time-earnings: Philips Petroleum Co., Continental Oil Co., and Commonwealth Oil Refining Co.

Phillips scored an increase of close to $7.8-million, bringing net income to $112.4-million, or 7.4% higher than a year ago. This is the second record set by the company in as many years.

Continental's earnings rose by 1.6% to $61.2-million, while Commonwealth reported a jump in net earnings of 111.1% to $6,618,000.

So far, only one firm, Shell Oil Co., has reported a dip in earnings.

Shell's net fell 1.9%, from $147,418,000 in 1959 to $144,580,000 in 1960.

As recently as three months ago, Shell had anticipated that its 1960 earnings would score a modest increase over the previous year.

Natural gas sales are becoming an increasingly attractive source of revenue.

Gains in earnings from natural gas were singled out as an important factor in the 1960 profits picture by, among others, Standard Oil Co. (N.J.), Sinclair Oil Corp., and Phillips.

Most company officials believe that 1961 could be the best year in oil's history. But they warn against too much optimism based on inventories being in better shape.

The industry has entered 1961 with an improved relationship between supply, demand, and refinery runs.

But Monroe E. Spaght, Shell's president, believes that too much stress has been placed on stocks as a yardstick of the industry's well-being.

The potential danger to 1961 earnings is that, with the anticipated buildup of crude stocks, refiners may be tempted to go overboard on refinery runs.

The industry this year is planning to bolster crude inventories, which have been at their lowest point in years. Unless processors use restraint, the pattern of oversupply and soft prices of early 1960 could be repeated.

Will Gas Regulation Become Tighter?

That may be one indication from the two appointments to the Federal Power Commission by President Kennedy. Both newcomers approve the Supreme Court's ruling that FPC has the right to consider end-use control on gas.

President John F. Kennedy's two Democratic appointees to the Federal Power Commission say they have regulatory know how and open minds, to make up for their inexperience in natural gas.

In interviews with PETROLEUM WEEK, Joseph C. Swidler, designated FPC chairman by Kennedy, and Howard Morgan conceded that their first-hand contact with gas problems has been slight.

What they do know of the FPC convinces them both that delay is the agency's worst problem.

In that, they echo the findings of others who have recently examined the commission, notably James M. Landis, Kennedy's advisor on regulatory problems.

Swidler, 54, brings many years of work as a staff lawyer and general counsel for the Tennessee Valley Authority to his new job. He says:

"The primary problem is the dispatch of the work at the commission. That is the really key problem, to get abreast of the workload, and dispense administrative justice promptly as well as equitably."

Swidler has been studying the Landis report as well as the findings of Rep. Oren Harris' Legislative Oversight subcommittee "to get some preliminary idea of the problems."

He won't endorse any of the specifics in either report until he has had a chance to study the commission himself. He expects to rely on the present commissioners and the FPC staff for other ideas. "Inevitably, they too have been concerned," he says.

The 46-year-old Morgan, who has a cattle ranch near Sisters, Ore., and has served two years as Oregon Public Utility Commissioner, says: "Landis sets out the main problems, but I would consider the backlog of cases the most pressing."

Both men welcome the Supreme Court's assertion of FPC's right to consider the proposed end use of gas, in the recent Transcontinental Gas Pipe Line Corp. decision.

"I am happy that the FPC's jurisdiction to consider end use has been sustained. It was very welcome," Swidler says. Morgan comments: "The commission should have the right to make policy, and I believe Congress intended to give it the power to choose between the uses of various fuels."

Swidler has followed gas-producer regulation in a general way, he says, but he won't commit himself now on whether he believes area pricing is a satisfactory substitute for cost-of-service regulation.

"I have a lot to learn about gas, and I wouldn't want an opinion I gave now to stand in the way of my learning," Swidler says.

However, he adds, "I have always had a great interest in regulation. When I left law school, my earliest work was in the public utility field, and for two or three years I read every court case on the subject. I have kept up with the gas field generally, but I am not a gas expert.

One of the appointees has followed the long struggle over gas producer regulation "only in the newspapers" and says it will be one of the first subjects he will have to study.

Morgan says his knowledge of regulation is mainly in transportation, beginning with a thesis on the Interstate Commerce Act at Reed College, Portland, and continuing with transportation work in World War II, and as a transportation consultant to the Defense Dept. after the war.

He was known as a strong public-power advocate when he was Oregon Public Utility Commissioner. In that job, he was also involved in the first negotiations to assure that Oregon would get a share of Canadian gas imported by utilities in California.

"My philosophy of utility regulation is very simple," Morgan says. "I think it is right for utilities to be monopolies, because duplication is wasteful. The function of regulation, then, is to supply the balance that otherwise would come from competition."

Ethics have become a problem for regulatory agencies because the quality of personnel has declined, Morgan says.

Morgan opposes shutting off commissioners from contacts with regulated industry, because "if commissioners hold themselves aloof, it destroys the idea of expert commissions, and you might as well decide the cases in courts."

The confusion over Kennedy's designation of one of the appointees as chairman came as a surprise in Washington, where it was expected that the question of the chairmanship would be ironed out privately between the Administration and Chairman Jerome K. Kuykendall, a Republican.

Kennedy, however, will have named a majority of the five-member agency when the term of Commissioner Arthur Kline expires in June.

Kuykendall denied a newspaper report saying he would fight to keep the chairmanship, but he still refused

First View of the Kennedy Program

President John F. Kennedy told Congress this week that the American economy is "in trouble." The Administration, he said, "does not intend to stand helplessly by." Kennedy will propose to Congress measures that will:

- **Raise and expand minimum wages.**
- **Offer tax incentives for sound plant investment.**
- **Increase the development of natural resources.**
- **Encourage price stability.**

to say he would resign as chairman.

Swidler, meanwhile, was cautiously avoiding saying he was ready for a fight over the chairmanship, and indicated he would leave the matter to Kennedy to solve.

If Kuykendall kept the chairmanship, a Kennedy appointee could be given it in June, 1962, anyway.

Swidler, a Nashville lawyer, will get the commission seat held by William R. Connole, who wasn't reappointed by former President Eisenhower.

Swidler was an assistant solicitor in the Interior Dept. in 1933, and then went to the TVA legal staff. He became general counsel in 1945, and entered private practice in 1957.

Morgan succeeds Paul A. Sweeney, an interim appointee of Eisenhower, for a term that runs until June, 1963.

Morgan went to the Democratic National Convention last year as a supporter of Adlai Stevenson.

He has been in the Oregon House of Representatives, and has been state Democratic chairman. He is part-owner of a Portland construction firm.

Kuykendall and Commissioner Frederick Stueck, another Republican, whose term runs until June, 1964, must either be reappointed or replaced by other Republicans, assuming that Kline is replaced by a Democrat in June. No party may have more than three commissioners.

Texas-California gas line:

Backers Say Case Is Strong

Backers of a gas pipeline through Mexico linking Texas and California believe they have built a strong case before the California Public Utilities Commission. And they say they can do the same thing when they reach the Federal Power Commission.

They take this view despite the U.S. Supreme Court's recent affirmation of FPC's power to consider end use and price impact in direct industrial sales.

The opponents of the 1,600-mi. pipeline proposed by Tennessee Gas Transmission Co. and Southern California Edison Co., as well as neutral attorneys in the gas field, don't share this rosy view.

A typical view is that the Supreme Court ruling blocking Transcontinental Gas Pipe Line Corp. from carrying boiler fuel gas bought by Consolidated Edison Co. places a major obstacle in the path of the Tennessee Gas project.

In one lawyer's view: "FPC just isn't going to sit still and let that much gas go into boilers."

The companies involved are preparing to ask for certificates of public convenience and necessity, instead of simply import and export licenses.

While the issues are the same in the Tennessee gas application as in the Transco case, the facts are completely different, an interested spokesman insists, and there is plenty of justification for the line.

Tennessee Gas and Southern California Edison will testify before FPC that the proposed industrial sale will not preempt existing capacity.

Since Southern California Edison is required by the Los Angeles air-pollution control ordinance to burn gas six months of the year, they will argue, there will be no displacement of less valuable fuels. And the contracts with Humble won't trigger escalation clauses, they will add.

In the hearings before the California commission last week, the proponents stressed the need for the gas, the stable prices, and the fact that Southern California would be connected to two new gas sources —the South Texas reserves of Humble Oil & Refining Co., and the northern Mexico reserves of Petroleos Mexicanos.

Jet Engine Will Power Electric Generator

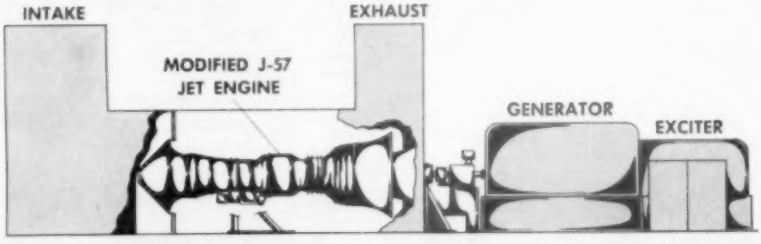
Some time next year, a tandem linkup of a jet engine and a power generator will begin manufacturing electrical energy at the flick of a switch in Hartford, Conn.

It's a new application of jet power, and a new concept of power generation, according to Hartford Electric Light Co. and Pratt & Whitney Aircraft, who pioneered the idea jointly.

The jet engine is a modified J-57—the same type that is used in many commercial and military planes. In the Hartford installation, the thrust that ordinarily pushes an aircraft through the sky will ram against the blades of a free turbine wheel. The latter, like an enclosed windmill, will turn the generator to produce electricity (illustration).

Chief advantages of the new generator over conventional steam turbines are faster starts, shorter overhaul time, and cheaper installation costs.

Both companies stressed that the new unit is designed to supplement rather than be a prime producer of electrical power. It is meant to be used during peak load periods only.



CROSS SECTION VIEW shows how a jet engine will rotate a free turbine which, in turn, will drive a generator producing 8,000 to 10,000 kw. of electricity.

Regular jet fuel is used in the engine and this would make the operating cost higher than for steam turbines, powered by lower-value fuel.

But with the modified jet engine, there's no time lost for turbine warm-ups, literally providing pushbutton control.

Maintenance problems are simpler, and the jet engine itself can be replaced in six hours, compared with several weeks of shutdown time required for regular power plants. Installation costs are expected to be about one-half those of an orthodox unit generating the same amount of power—8,000 to 10,000 kw.

The tandem generator will be about one-fifth to one-sixth the weight of stationary gas turbine units.

The new application of jet power is somewhat comparable to an earlier Pratt & Whitney venture in which it harnessed a J-57 to a compressor at a pipeline station (PW—Sep.11'59, p42).

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What's New / IN THE INDUSTRY

There's real hope now that the gas bill task force will be able to complete its work some time this spring. Participants in this weeks meeting of the task force made further progress on the draft of a bill to free natural gas producers from utility-type regulation, and several speculated that "we're about two-thirds of the way home now." They agreed that the latest New York meeting—attended by 50 or so producers, pipeline firm officials, and distributors—"was very satisfactory, very promising." One attendee commented, "We're not in a hurry . . . we want to make sure we have agreement and understanding before we go to Washington with our proposal." No date was set for the next meeting of the informal group, but it was anticipated that it would be called by the chairman within the next month to six weeks.

•

Crude prices will have to rise at least 25¢ per bbl. "if the domestic industry is to remain solvent," in the opinion of Alvin C. Hope, president of the Independent Petroleum Assn. of America. Hope says the average price for U.S. crude has dropped 17¢ per bbl. since February, 1957, and that cumulative wage increases absorbed by the industry over the same period are equivalent to 11¢ per bbl. In other words, he says, producers need more than 25¢ per bbl. more just to get back to where they were, pricewise, four years ago.

•

Unanimous approval of the "one-roof" oil heat organization was given last week by the directors of the National Fueloil Council and the Oil Heat Institute. Next step: ratification of the move by the members of each unit. That is expected to be accomplished within a few weeks. Marketers look for unification of NFC and OHI by Apr. 1, the target date that was set last November (PW—Dec.2'60,p67).

•

More than half of the membership of the U.S. Senate is in favor of a Congressional study of this country's energy resources. A nose-count last week end showed that 52 Senators had signed up as cosponsors of a resolution calling for a joint congressional committee to probe the fuel picture. This represents a gain of nine signatures over last year's total. The resolution is being pushed by coal interests, and many oil men believe their objective is end-use controls on fuel utilization.

•

Canadian producers anticipate a contraseasonal high level of exports to U.S. markets during the first four months of this year. February nominations for Alberta crude, condensate, and natural gasoline, indicate exports will average 91,850 b/d in February, 84,550 b/d in March, and 93,450 b/d in April. At the same time, movements of crude, condensate, and natural gasoline to refineries is expected to decline from 424,117 b/d in January to 362,748 b/d in April, a normal seasonal pattern. This means then that exports will be 22.5% of the Alberta movements in February, 24.3% in March, and 25.8% in April—a moderate increase at a time when the opposite should be true.

•

Richfield Oil Corp. and Standard Oil Co. of California jointly bid $271,614 for three tracts of University of Alaska land last week. The acreage is only three miles from the Falls Creek exploratory test now being drilled. The Richfield-Standard bids covered 400 acres in this latest example of Alaskan lease interest (page 22). The lease sale was handled by Alaska's Division of Lands for the state university.

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Hydrotreating	Kerosine	Acid-Caustic	Olefins Removal
Reforming	Cat. Cycle Oil	Caustic-Water	Color Improvement
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Looking Ahead in Washington

McGraw-Hill
Washington
Bureau
February 3, 1961

Pressure from Canada will grow for changes in U.S. oil import regulations. Both sides remained tight-lipped on details after the Washington discussions last week between top Ottawa officials and the new secretaries of Commerce, Interior, and the Treasury. But the promptness of the Canadians in seeking the meeting right after President Kennedy's inauguration was ample evidence of their sense of urgency.

Canadian independent producers are putting the heat on the Diefenbaker government. They are armed with the unmet production goals recommended in the Borden Commission report, and the passing of the Dec. 31, 1960, target date. They cite the fact that the National Energy Board has the power to set up import controls without further approval from Parliament, plus figures on the relatively low ratio of Canadian production to reserves.

Canadians say competition is tight in U.S. markets under present import rules. Despite the overland exemption from import controls, Canadians are galled by two restrictions: U.S. refiners can't include Canadian crude in their inputs for figuring future import quotas, and Canadian crude can't be exchanged for offshore crude, to give Canadian oil participation with domestic oil in the price differential.

They also sense a tacit compact among U.S. import officials to go slow on Canadian imports. Canadian producers argue that a barrel of Canadian oil is as good as one from the U.S., from the defense viewpoint. The possibility of unilateral import restriction, cutting down on Venezuelan and Middle East oil to eastern Canada, also entered into the discussions with Kennedy Administration officials, and may well come up again.

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Some foreign-owned oil companies may lose their sales to the Defense Dept. when contracts expire this spring. The Pentagon is studying foreign contracts on an area-by-area basis to see if gold outflow can be reduced. Europe is being studied first, and indications are that some savings may be possible in Italy and Germany. One study showed it would cost the Defense Dept. an extra $225-million annually to buy all possible requirements in the U.S.

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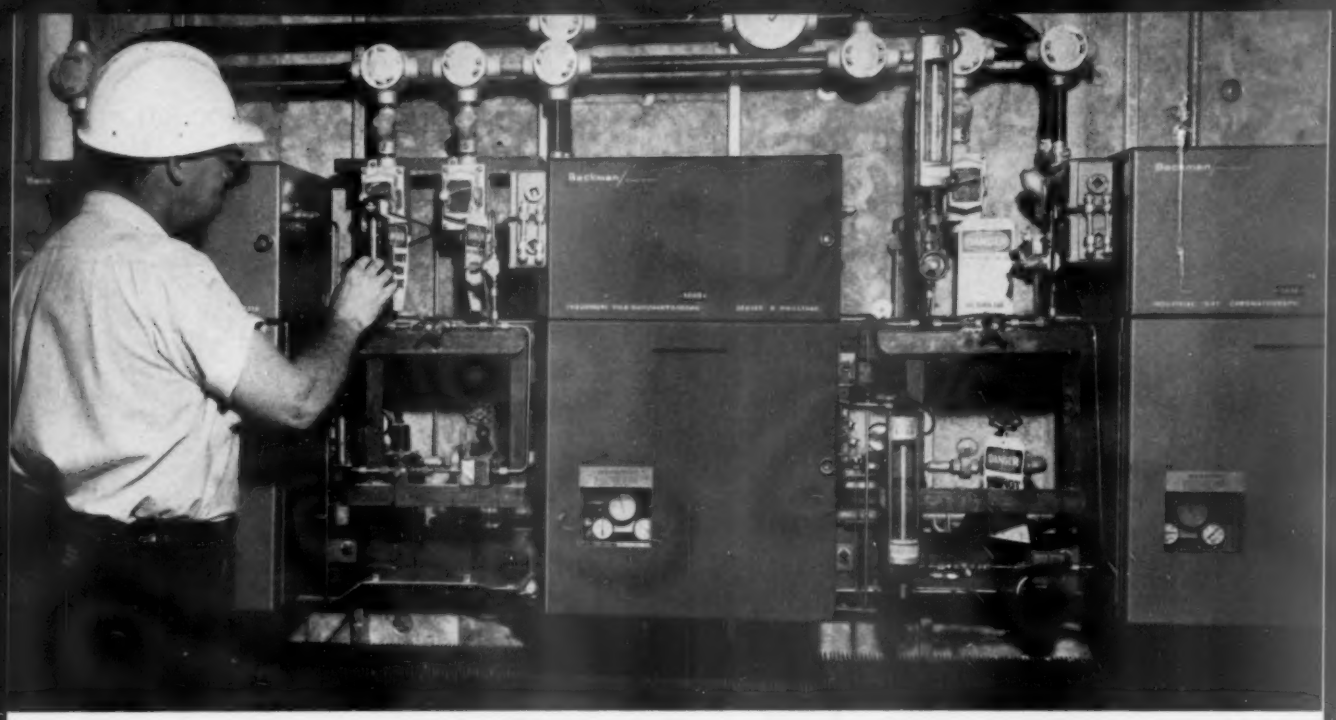
The Office of Civil & Defense Mobilization will study the oil imports program, for President Kennedy's benefit. Frank B. Ellis, the new OCDM chief, says this will be part of his report on the over-all operations of the agency. Ellis was noncommittal on his opinions on oil imports when Sen. Margaret Chase Smith (R., Me.) and other New Englanders tried to draw him out in an Armed Services Committee confirmation session. Before the committee approved him, Ellis promised to keep Mrs. Smith informed of his position on imports.

•

The new director of Internal Revenue wants all taxes lowered by reducing special provisions, including percentage depletion. Mortimer M. Caplin, University of Virginia law professor, would like to see tax rates cut to range between 10% and 65%. Loss of revenue would be avoided by throwing out some special exemptions: sick pay and dividend exclusions in the lower brackets, and capital-gains features at higher levels.



Know-how by Dow... chromatography by Beckman. Beckman gas chromatography analyzers have been making intermediate and end-product analyses of the ethylene process at the Dow Chemical plant, Bay City, Michigan, since 1959. Beckman process chromatographs permit Dow to produce more ethylene, polyethylene, ethyl benzene, and ethyl benzene derivatives at reduced cost and at a consistently high purity level. ⌘ The four Beckman analyzers were chosen by Dow because of their rapid response, efficient analysis performance, reliability of operation, and minimum maintenance requirements. Two are located on distillation towers; another measures the effluent of the catalytic purification unit; the fourth is placed in the ethylene product stream to measure purity of end product. Precise parameter adjustments are made possible by 12 product readings taken from recorders located in a central operations building. ⌘ For more details on Beckman process gas chromatography write for Data File 79-5-07.

Beckman
Scientific and Process Instruments Division
Beckman Instruments, Inc.
Fullerton, California

Ahead: Alaska's Biggest Drilling Year

Swanson River Field to Pace Kenai Peninsula Activity

Development drilling will be the story on Alaska's Kenai Peninsula this year, with more holes planned than were drilled in the past three and one-half years.

Standard Oil Co. of California has budgeted approximately $14-million for development drilling this year. The plans call for drilling of 36 development wells, including 12 on the Swanson River Unit and 24 on the Soldotna Creek Unit. Six rigs will be used.

Stancal is operator of the 71,680-acre Swanson River Unit for its interest (44¾%) and that of Richfield Oil Corp. (L.A.), 44¾%; Union Oil Co. of California, 5¼%; and Ohio Oil Co., 5¼%. Stancal, operator, and Richfield share interests in the 70,720-acre Soldotna Creek Unit.

The 36 wells programmed for this year compare with a total of 29 drilled since the initial discovery at Swanson River by Stancal and all other operators on the entire Kenai Peninsula.

Five wildcats also are definitely planned on the peninsula. And several others are rumored.

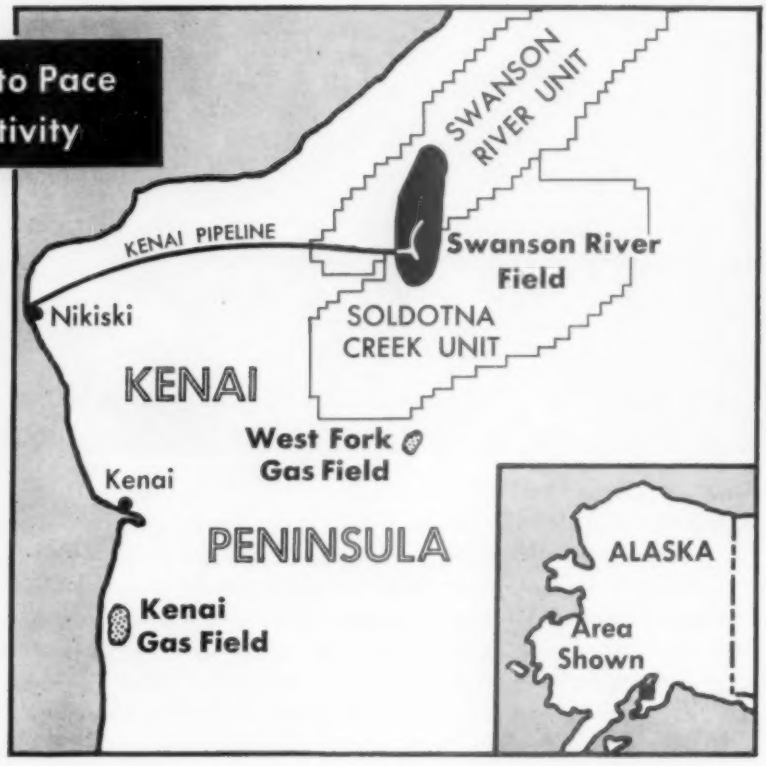
Stancal has scheduled two wildcats. One reportedly will be in the Swan Lake area northeast of Swanson River field. The company presently is drilling below 7,832 ft. at the other wildcat, No. 1 Falls Creek, section 6-1n-12w, some 40 mi. southwest of Swanson River production.

Union and Ohio have announced plans to drill three joint-interest exploratory holes this year. One reportedly will be near Steling, northeast of the Kenai gas field.

There are rumors that something may be brewing north of Swanson River Unit, where Union-Ohio, Sunray Mid-Continental Oil Co., and Texaco Inc. hold acreage.

Crude now is moving with no unusual problems to tanker loading facilities through a new $5-million pipeline, hastening the day of payout for an investment of well over $20-million on the Kenai Peninsula.

The first shipments through the 22-mi. crude line began Oct. 10, 1960. They have since swelled to a volume of 5,100 b/d, moving from Swanson River field to tanker loading facilities at Nikiski, on Cook Inlet, west of the producing area. The line is a joint venture of Stancal and Richfield.



The first tanker shipment was made from Nikiski on Nov. 12, when Stancal's tanker, W. H. Berg, was loaded with some 100,000 bbl. of crude in slightly over six hours. Oil flowed through the 24-in. line in excess of 15,000 bbl. per hr., the designed rate.

If production continues to increase as expected, a tanker will be loaded each week. The company presently anticipates using T-2 tankers to haul the bulk of the crude to California.

The box-score since the initial discovery on Kenai shows a phenomenal success ratio. Of 29 holes drilled, 25 were completed. One oil pool and two gas fields have been opened.

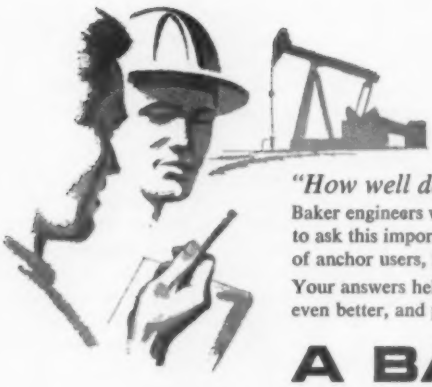
A breakdown shows 19 oil wells and six gas wells, accounting for 270,000 ft. of hole, and abandonment of four other holes, accounting for dry-hole footage of 46,945 ft.

In the Swanson River field, 11 wells —ten oil and one gas—have been completed on the Swanson River Unit and nine oil wells on the Soldotna Creek Unit. Three of the Swanson River ventures were dry the first time down, but two were whipstocked later and completed for oil production.

Four gas wells have been completed without a miss in the Kenai gas field, and one well has been completed with no follow-up drilling in West Fork gas field.

In addition to the one dry hole at Swanson River, other dry holes include Stancal's No. 1 Deep Creek Unit in the Ninilchik area, some 50 mi. southwest of Swanson River field, a 14,221-ft. hole abandoned in August, 1958; Halbouty Alaska Oil Co.'s No. 1 Halasko-King Oil Co., 4 mi. southwest of Swanson River field, abandoned in May, 1959, at 12,037 ft.; and Halbouty Alaska Oil Co. et al No. 11-11 Bishop Creek Unit, 10 mi. west of Soldotna Creek production, abandoned in September, 1960, at 9,034 ft.

The heaviest activity and produc-



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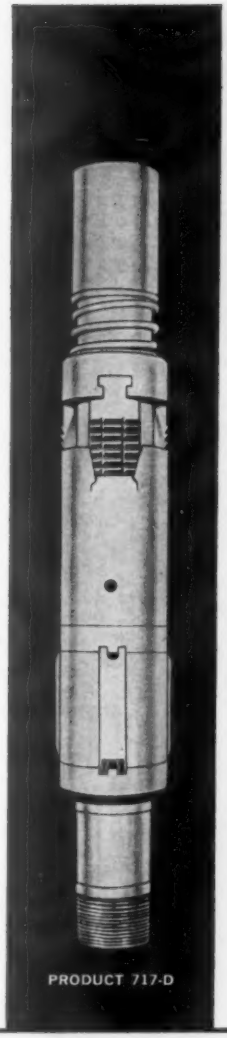
Really Does Compensate as indicated by the need to respace pumps after several days use, or by the upstrain required to release doughnut-type hangers—or, most importantly, by the results obtained.



The Baker Compensating Tubing Anchor has been on the market a little over three years. It has proved its ability in hundreds of wells and recent changes make it even better.

Because it automatically compensates for changing well conditions, it maintains the right amount of tension at all times to effectively eliminate breathing and buckling. It's easy to run—no involved calculations, no need to apply tension from the surface.

A careful study of hundreds of field reports reveals not one reported instance of inability to retrieve a Baker Compensating Anchor where the casing above the anchor was in good condition and to gauge. And recent design improvements now insure easier removal with greater freedom from corrosion.

The economics of today's oil industry make it more important than ever to explore every possible means of cutting costs and improving efficiency. Baker honestly believes that the Compensating Tubing Anchor is one such means. Your Baker Man has the facts on this tool's past performance, and on the several ways it has been improved. Ask him.

TYPICAL FIELD REPORTS

Kansas: Operator ran anchor in an attempt to cut down tubing leaks (seven leaks in previous three months). In the twelve-month period following installation of a Baker Compensating Tubing Anchor he has had only two tubing leaks and has increased pump efficiency by approximately 43%.

Texas: Operator had run twenty-five Baker Compensating Tubing Anchors and was very pleased with results. As a test, he released the Baker anchor in a well that was making 140 barrels per day. After release (tubing string unanchored) he reported that production fell off to 75 barrels per day. After resetting anchor, production went back to 140 barrels per day.

Eastern Colorado: Operator has run 40 Baker Compensating Anchors. Had not previously used anchors. Ran anchors to reduce frequency of tubing jobs to replace rod-cut tubing. Reported that he had eliminated rod-cut tubing, increased pump life 100% and production 14%.

BAKER **BAKER**

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tion has centered in the Swanson River field.

Production during December, 1960, averaged 5,143 b/d of oil and 953,000 cf/d of gas, including 2,451 b/d of oil and 399,000 cf/d of gas from the Swanson River Unit, and 2,692 b/d of oil and 554,000 cf/d of gas from the Soldotna Creek Unit, adjacent to the Swanson River Unit on the south and east.

Though there are ten producible oil wells on the Swanson River Unit and nine on the Soldotna Creek Unit, some of these wells are not yet on production because of incomplete surface facilities. Operator currently is producing 12 wells on both units.

The discovery that opened the field and touched off the present surge in Alaska is Richfield's No. 1 Swanson River Unit, section 10-8n-9w, completed in September, 1957, for 900 b/d of 33-gravity oil and 122,000 cf/d of gas through 1½-in. choke and perforations in the Hemlock at 11,125-543 ft.

Soon after the discovery, Stancal acquired a half interest in the unit and took over as operator.

The limits of production so far have been found to be erratic, due to structural complications. The productive area to date appears to be on a northeast-southwest trend, approximately 6 mi. long and up to 2½ mi. wide.

Stancal was granted permission last November to drill on 80-acre spacing, instead of the 160-acre spacing provided for under Alaska oil and gas conservation regulations. The petition was based on evidence submitted by Stancal to establish lack of reservoir continuity.

The company presently is running five rigs in the field.

Three different contractors—Reading & Bates, Rowan Drilling Co., and Coastal Drilling Co.—are involved in the drilling program.

Costs for an average well in the Swanson River field have been cut materially from the $500,000 figure regarded as average a year ago.

The typical drilling program, however, has not been changed (PW—Jan.29'60,p25).

A company spokesman credits savings to an improved drilling fluid program and reduction in over-all drilling and completion time.

One contractor credits special winterizing and the increasing "savvy" of Alaskan help with cutting rig-up time from 10 to 12 days to 3 to 5 days.

"By concentrating on fast witerizing," says C. T. Whitney, vice-president and general manager of Coastal Drilling Co., "we've cut time required to put up winterizing from three or four days to about six hours."

Winterizing similar to that developed for a Coastal rig shipped to Alaska last May (PW—Jun.10'60,p 19) has been installed on three other Coastal rigs operating in Alaska. Essentially, the winterizing features siding sections that lock together with only one bolt for each section, thus making it possible for a crew to install winterizing with a fork lift, for siding, and a crane for the roof.

One rig is working in the Kenai gas field, where the team of Union Oil Co. of California and Ohio Oil Co. have completed four gas wells.

Union, as operator, reportedly has blocked out reserves far beyond the fuel needs of Anchorage. The commitment for Anchorage calls for provision of an estimated 30-million cf/d of gas or roughly 200-million cu. ft. over a 20-year period.

The investment by Union-Ohio in the Kenai Peninsula was estimated at some $2.5-million before the team's No. 14-6 Kenai, 6 mi. south of the

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WELL DONE WITH MAGCOBAR TECHNOLOGY . . . THROUGH PLANNED MUD PROGRAMS

MAGCOBAR PLANNED MUD PROGRAMS make the above statements facts, not claims. In high weight emulsion muds, for example, the Magcobar engineer properly substitutes Bit Lube® for some of the oil to cut drilling costs by reducing the amount of barite required. In a typical well, the oil content of the mud was allowed to drop from 11 to 5 per cent. Bit Lube was added to this 17.8 lb./gal. lime mud with these savings in barite:

	Sacks of barite per day	Cost of barite per day	Cost of Bit Lube per day	Cost of Oil per day	Total Cost per day
Emulsion (2 week average)	177	$409.76	$—0—	$74.03	$483.79
Bit Lube and Emulsion (3 week average)	52	120.38	122.43	8.25	251.06

NET DAILY SAVINGS WITH BIT LUBE: $232.73

Not only does Bit Lube give direct cost savings, but it also offers escape from costly pipe sticking, even in extreme directional holes. Bit Lube lowers the friction coefficient of the mud, to give over-all higher drilling mud performance. These savings can be added to those in the chart.

The skilled use of good products like Bit Lube to cut drilling costs is the heart of Magcobar Technology. Let the Magcobar engineer plan the mud program for your next well and this Technology will save for you all along the line.

WELL DONE WITH MAGCOBAR TECHNOLOGY . . . THROUGH PLANNED MUD PROGRAMS

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HOUSTON

town of Kenai, found gas pay late in 1959.

The project currently active is Union-Ohio's No. 41-19 Kenai Unit, section 19-4n-11w, redrilling below 1,796 ft. after going to 5,623 ft. the first time down. The location falls 2¼ mi. southeast of the field's discovery. Coastal Drilling is contractor.

The West Fork gas field discovered last year by Halbouty Alaska Oil Co. is still shut in pending a market for the gas.

The discovery was completed from plugged depth of 8,700 ft. after going to 14,020 ft. (PW—Oct.7'60,p30). Initial production from a zone at 4,992-5,020 ft. was 80-million cf/d on open flow from the Kenai formation of Eocene age.

The well represents the first discovery by an independent in Alaska since discovery of the Katalla field in 1901 by Chilkat Oil Co.

There will be considerable emphasis this year on finding markets for the Kenai Peninsula's reserves of natural gas. One plan—to furnish gas to Anchorage—should become a reality by year's end.

Work will be resumed in the spring on the laying by Alaska Pipeline Co. of dual 12-in. gas lines across Turnagain Arm to complete the final 6-mi. portion of the 80-mi. line joining the Kenai gas field with Anchorage.

Work was halted for the winter months when winds, tides, shifting silt, and discovery of two channels in the inlet hampered efforts to float pipe into place.

Some experimental work to drag the lines under water across Turnagain Arm was done in the early stages of the project. Friction between concrete covering on the pipe and material on the floor of the inlet caused the experiment to be abandoned at that time.

Anchorage Natural Gas Corp., under terms of a franchise from the city of Anchorage, has until December, this year, to start deliveries of gas to city customers. The distribution system was virtually completed when work on the transmission lines was halted at Turnagain Arm.

Other proposals: (1) tapping the Fairbanks market; (2) liquefying gas; (3) establishing chemical plants to use methane; and (4) generating electricity.

Alaska Pipeline Co. last year initiated economic and engineering studies of the feasibility of extending the Kenai-Anchorage line to Fairbanks. Practicality of the proposal, it is believed, depends to a large extent on assurance of the military market at Fairbanks. No commitments have yet been made for Kenai gas.

Union and Ohio are continuing to investigate sales of gas as liquid methane to Japan and the U.S. in addition to establishing the chemical and fertilizer plants to use methane as raw material.

Last August in Anchorage, J. C. Donnell II, Ohio's president, described as "promising" preliminary studies of liquefying natural gas on the Kenai Peninsula and selling the product to Japan.

Studies are continuing, and still look promising, a company spokesman reports.

Another proposal placed before the Anchorage city council late last year was to supply the city with electric power generated by gas turbines. Generation of power would be at the wellhead, and electricity would be transmitted through lines to Anchorage. Early in January, Roy Samson, Anchorage Electric Utilities manager, said Stancal was willing to supply up to 40-million cu. ft. of gas for 20 years or longer at a "talking price" of 16¢ per Mcf.

Gas would be from the Swanson River field.

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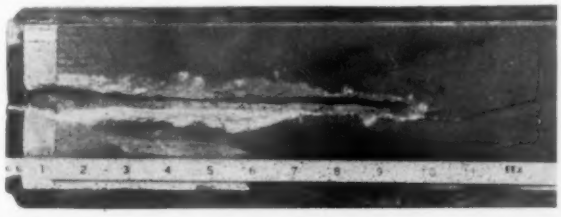
Two more powerful, deeper penetrating Glass Jet Units are now available from McCullough. They are improved Super Casing Glass Jets carrying 25 and 35 grams respectively and are run in flexible Steel Strip Carriers to perforate 4″ OD casing and larger.

In tests conducted in standard Berea Sandstone targets, penetration for each size was greater than ever before achieved – more than 9″ in these very hard targets and with excellent well flow index.

McCullough Glass Jets are the only expendable jet charges that are relatively junk free. When fired they disintegrate into a harmless powder of silicon and lime. No carrots are formed. Fragments of junk, usually associated with other expendable jet perforators, are eliminated. The Steel Strip Carrier is removed from the well after the gun is fired on the electric wire line.

For deeper penetration – peak production – use improved McCullough Super Casing Glass Jets on your next job.

The 25-gram Super Casing Glass Jet is available in 3¼″ OD and 3¾″ OD gun diameters. The 35-gram size is furnished in 4″ OD and 5″ OD diameters. Perforators may be any length required to perforate several intervals on one run in the well. This is accomplished by leaving blank sections in the length of carrier where perforating is not required.



Standard Berea Sandstone target perforated by 25-gram improved Super Casing Glass Jet at ½″ clearance. Average penetration of a series of tests – 9.312″. Average entrance hole size – 0.375″. Pressure rating – 20,000 psi. Temperature rating – 300°F.

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Modernization Marks El Dorado Past

Kansas' El Dorado oil field continues as one of the Mid-Continent's most active, progressive areas despite nearly half-a-century of continuous production.

Cities Service Petroleum Co., owner of nearly two-thirds of El Dorado's 25,000 productive acres, is now working six rotary rigs and several workover units to implement a 50-well development program announced at year's end (PW—Dec.16'60,p32).

Approximately one-half of the Cities Service production is handled automatically by four lease automatic custody transfer units.

Although common positive-displacement meters are used at each ACT installation, special manifolding makes possible the monitoring of individual wells for volume and oil-water ratio recording (PW—Nov.15'57,p54).

An extensive, multizone waterflood program begun in 1947 by Cities Service Petroleum Co. has been the pivotal factor in expanding output.

Since the inception of the flood program, nearly 600 new input wells have gone into operation at El Dorado, which is in Butler County.

There were 66 wells completed last year, both input and production, and 51 holes are now in various stages of completion (cleaning-out, acidizing, running pipe, or cementing).

Present work comprises both injection- and producing-well drilling on the fringes of flooded reservoirs in two shallow Permian sands, the Kansas City limestone of Pennsylvanian age, and the upper Simpson of the Ordovician.

The El Dorado waterflood program already recovered an additional 18-million bbl. of oil, and reservoir engineers predict that another 11-million bbl. will be recovered during the remaining life of the field, estimated at 15 years.

Cities Service's cumulative primary production has totaled approximately 104-million bbl.

Cities Service has linked its overall flooding program to the development of modern methods of treating water from diverse sources.

Eight plants now treat 200,000 b/d of water and are adequately equipped to handle expected future demands, except in the isolated Lansing-Kansas City area.

Both open and closed systems play their parts at El Dorado. Arbuckle water, with its high hydrogen-sulfide and iron-sulfide content, tends to cause severe corrosion and equipment-fouling problems.

THEN—These wooden derricks and tanks on the Cardy and Enyart leases were typical of El Dorado development in 1919. Wooden tank-battery sheds helped stem oil evaporation.

Although Cities Service found that this surface-water can be circulated in a closed, protectively coated system, experience has shown that it is best handled through aeration in open settlement ponds.

The open ponds are lined with an asphalt material to prevent surface water seepage contamination. Flocculants aid settlement, and the water is filtered through gravity-flow, sand-type filters. Chlorine is added for bacterial control.

Since 1954, Cities Service has installed several closed water-treatment systems to process Ordovician (Arbuckle and Simpson) waters. All the closed systems utilize automatic controls and pressure-type filtration equipment.

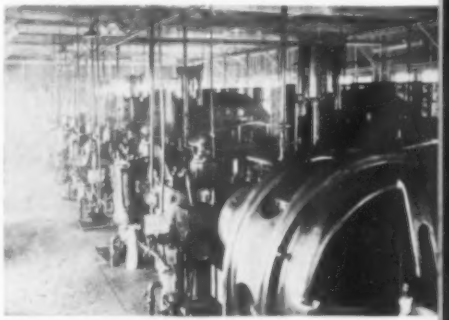
The water produced with waterflood oil from the shallow sands continues to be processed in the open system plants, which also are equipped with many automatic controls.

The solution of salt-water disposal problems by use of improved methods has contributed largely to the success of the waterflood program.

The shallow sands yield substantial volumes of produced water, but the major source of input water has been the Arbuckle formation, which possesses a strong natural water drive.

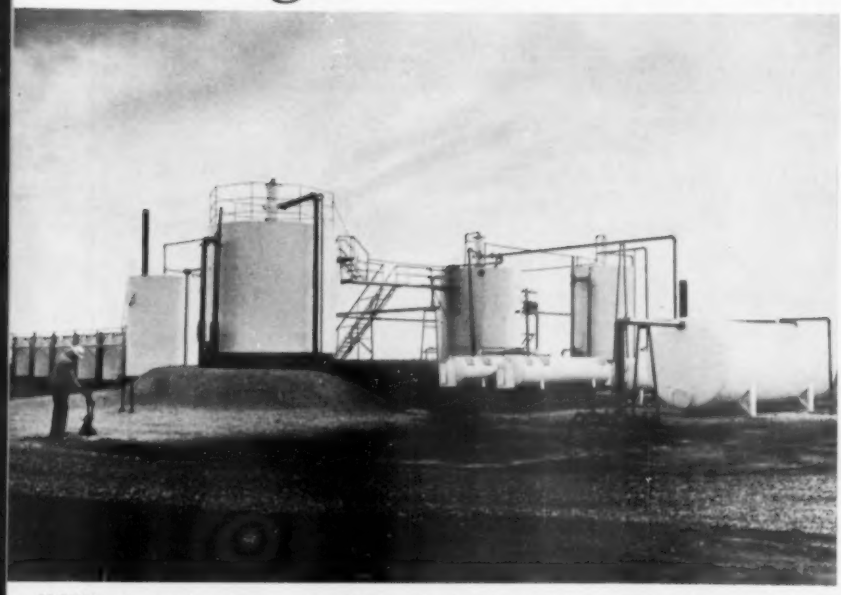
Cities Service engineers point out that production from some Arbuckle wells can be made economical only

THEN—Note electric lines leading to this centrifuge plant on the Lathrop lease.

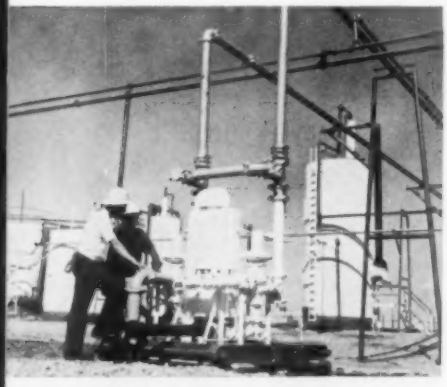


THEN—This Stapleton compressor station was used on Oil Hill for early air repressuring work.

—Presages More Growth



NOW—Automatic systems are steadily supplanting the tank farms. This unit, on the Wilson lease, handles oil production from several different formations in the field.



NOW—Basic sediment and water unit filters El Dorado Shallow crude on the Chesney lease.

NOW—This water plant on the Wilson lease processes formation water for reinjection.

by using the accompanying water for flood purposes in other zones.

Three down-dip Arbuckle wells, equipped with Reda submergible pumps, produce brine only, at rates up to 12,000 b/d each, with no apparent drawdown.

Cement-asbestos pipelines carry Arbuckle water from the southwest portion of the field (see map) to treating plants in the Koogler and El Dorado Shallow areas, where it is reinjected.

Of seven zones in the Permian or Ordovician, five are now under flood.

Reservoirs being flooded include the "550-ft. sand" (500 acres); the El Dorado Shallow at 650-ft. (5,100 acres); the Douglas Sand at 1,400-ft. (100 acres); the Kansas City at 2,000-ft. (800 acres); and the Koogler (Simpson and Viola flooded jointly) at 2,500-ft. (2,500 acres).

Approximately 95% of Cities Service's floodable acreage will have been developed for waterflood purposes upon completion of the current expansion program.

When the Kansas City reservoir is depleted, existing input wells will be plugged back in order to flood the Lansing zone, which overlies the Kansas City at a depth of 1,700 ft. The Arbuckle formation, because of its natural water drive, is not included in the program.

At present, Cities Service has 310 wells, mostly Arbuckle, which still are producing on primary drive. But 900 of its wells are on secondary production. Total current oil production from all zones is slightly more than 8,700 b/d.

FIELD DISCOVERY was abandoned in 1940, eulogized on plaque; put back on production in 1954.

El Dorado field is situated in Butler County along the trend of the Nemaha (granite) Ridge that extends in a north-south direction across eastern Kansas and portions of central Oklahoma.

Structure in the El Dorado field is formed by a truncated, faulted anticline having a closure of 1,400 ft. The nose of the anticline forms the Koogler Ordovician pool in the south portion of the field, while a fault isolates productive pay sections of the Viola and Simpson.

Most of the folding is confined to pre-Pennsylvanian rocks, with oil and gas accumulation in the shallow pays, primarily stratigraphic traps.

Many of today's standard operating procedures in drilling and production originated in the El Dorado field.

Among the operators' earliest innovations was the application of electricity (in the years 1918-19) to drilling, oil-lifting, and gas-dehydration.

This early work facilitated the development of much of today's lease-automation equipment.

Emulsion problems that plagued El Dorado operators in the early days led to the search for and eventual use of emulsion-breaking compounds that enabled individual lease operators to separate waters.

El Dorado also was the site of the first use of caustic soda on a wide-scale basis for downhole corrosion control. And one of the earliest successful attempts to reduce vaporization losses from tank batteries was made at El Dorado by the use of a Cities Service-designed pressure-vacuum relief valve.

Other original El Dorado ideas included the use of sectional wooden derricks with turnbuckles, the invention of the steel-pipe derrick, and the development of the forerunner of the modern pumping unit.

Three-Pool Play Sparks East Texas

Fairway Operating Co.'s three-pool triangle in Anderson and Henderson Counties may bring the hottest drilling activity East Texas has seen since the Neches pool was opened in 1953.

The company, for instance, announced last week five new locations. The pools—Fairway, West Fairway, and West Frankston—are spread over 4 sq. mi. near Frankston, Anderson County (see map). The Fairway area produces from the James lime section, basal member of the Rodessa series.

Fairway was formed in September, 1959, by two men: John E. Prothro, president, an east Texas independent, and Thomas W. Clay, vice-president, a consulting geologist-engineer who mapped the development project.

The company discovered and is developing the pools on part of 12,000 acres assembled by company principals over the past several years. Around a third of this was obtained under farmouts from Cities Service Petroleum Co., Gulf Oil Corp., Phillips Petroleum Co., and Humble Oil & Refining Co. Some of the farmout acreage is on a 50% interest basis.

To date, three Texas drilling contractors, Travis Ward Drilling Co., Athens; B. G. Byars, Tyler; and Trant Drilling Co., Tyler, have drilled all the holes, the first two for Fairway and the latter for Frankel Bros. Contract terms include part interest.

The play took on new impetus last week with the first active entry of a major.

Gulf announced it had staked location for No. 1 W. F. Westbrook, 2 mi. northwest of Frankston, just inside the Henderson County line, in the E. D. McKeller survey.

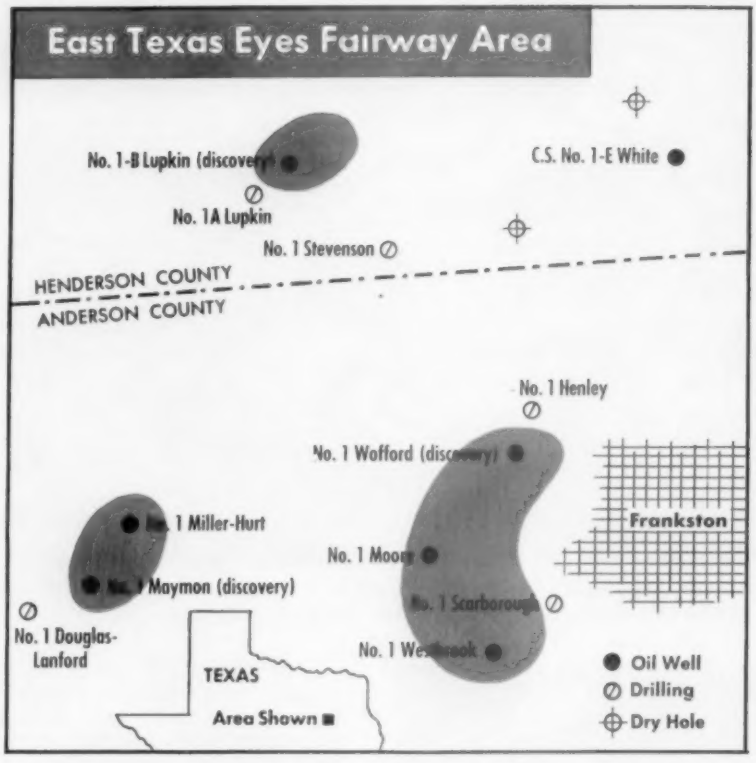
Cities Service was in the area five years ago, but suspended work when an offset to a discovery proved dry.

Discovery of the Fairway pool in August, 1960, touched off the play.

The Fairway pool discovery is 2 mi. southwest of a 1955 Cities Service James discovery. The Fairway well was found to be unrelated to the Cities Service well when a 10,439-ft. test midway between the two proved dry.

The Fairway pool discovery, No. 1 Wofford, Joseph Ferguson survey, less than 1 mi. northwest of the town of Frankston, flowed 420 b/d of 47.3-gravity oil through 12/64-in. choke and perforations at 9,959-72 ft.

After the pool was confirmed by a southwestern offset, the company stepped up its activity, and drilled another successful well southeast of the confirmation well. This third well was completed for 570 b/d through 12/64-in. choke and perforations at 9,928-52 ft. and 9,960-84 ft. for the largest potential in the Fairway area.



The Fairway pool success was followed by discovery of the West Fairway pool last November, 2 mi. west.

This second pool discovery, No. 1 Maymon, Alfred Benge survey, had an initial gauge of 178 b/d of 47-gravity oil and 23 b/d of water through 14/64-in. choke and perforation at 9,868-88 ft. and 9,898,924 ft. The company later recompleted the discovery for 358 b/d of water-free oil through 10/64-in. choke.

The company has completed a northeastern confirmation and is now drilling a third hole a half-mile west of the discovery.

West Frankston pool, newest of the three, and apex of the three-pool triangle, was discovered a few weeks ago in Henderson County, 3 mi. northwest of Frankston township.

The discovery, No. 1-B Olga Lupkin, B. H. Bizzell survey, flowed 535 b/d of 47.5-gravity oil through 12/64-in. choke and perforations at 10,119-36 ft. Operators logged a 140-ft. James section, of which around 80 ft. contained broken pay. The James lime in other Fairway-area wells has ranged from 130 ft. to 140 ft. with pay thicknesses ranging from 60 ft. to 80 ft., dropping to 20 ft. near pool edges.

Although No. 1-B Lupkin is credited for opening the West Frankston pool, an earlier test actually detected its presence. This hole, No. 1 Lupkin, George Baker survey, hit 47 ft. of James pay while going to 10,058 ft., where drillpipe was lost and the hole abandoned in favor of a new test.

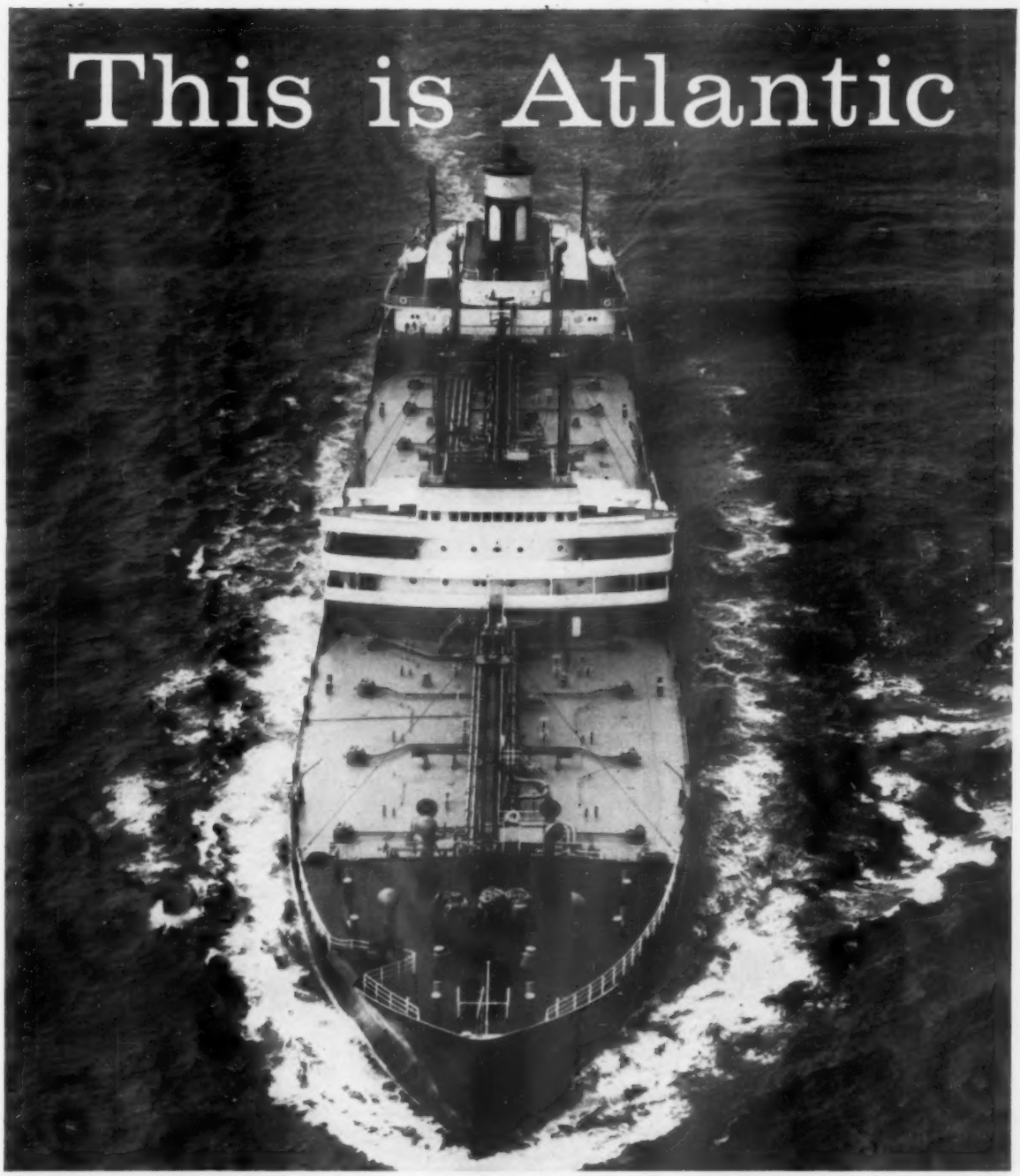
The yields encountered in the pools result from a reefing condition that provides thick sections and good formation porosity.

Clay believes that this reefing condition will limit James production in East Texas to the general area of northern Anderson, southeastern Anderson, and southwestern Smith Counties.

Geologically, the Fairway area is a deep-seated anticline, broken by faulting, with no evidence of structure in the upper formations.

The district's first James production was established in 1944, in the South Tyler pool of Smith County, 18-mi. northeast of the Fairway area. Per-acre yield to date from the James has been estimated at 2,700 bbl. of oil and 37-million cu. ft. of gas.

This is Atlantic



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What's New / IN PRODUCTION

New Seismic Explosive Is Easier on Fishlife

A new-type explosive for offshore seismic work that cuts fish mortality to virtually zero was used in work for Standard Oil Co. of California off Whidbey Island, Wash.

Geophysical Service, Inc. conducted the surveys in the Saratoga Passage under observation of the state's Dept. of Fisheries.

Each charge consisted of 90 lb. of Hercules EP-198-B, previously used only to a limited degree in California offshore work. It has a killing radius of roughly 75 ft., compared with 1,000 ft. for explosives previously used.

The studies complete Stancal's seismic program in the area.

•

Greater Aneth Hearing Postponed Indefinitely

The Utah Oil & Gas Conservation Commission has indefinitely postponed the Feb. 7 hearing on secondary recovery at Greater Aneth pool, San Juan County.

The commission feels the hearing, if it is to be held at all, would better be held after unitization of four areas of the pool is approved by the U.S. Geological Survey.

The commission has also engaged Core Laboratories, Inc. to take another look at reservoir pressures at Greater Aneth. Previously, Core had recommended that optimum results for secondary recovery by waterflood would follow when pressures were between 1,100 psi. and 900 psi. Some operators estimate the present average is around 1,000 psi.

•

A merger of two Texas oil companies—Ebro Oil Co., Inc., Longview, and Nortex Oil & Gas Corp., Dallas— will be voted on by stockholders Feb. 6. The merged firm will retain the Nortex name. Ebro operates 41 wells in the East Texas field, and has mineral interests under 51 wells, with crude reserves estimated at 7-million bbl. Nortex properties are located principally in North Texas.

•

Stockholder approval is needed for the proposed merger of Midland Oil Co., Cheyenne, with Consolidated Oil & Gas Inc., Denver.

Consolidated has assets of more than $4.5-million with producing wells in the Denver, San Juan, Permian, and Forest City Basins.

Midland owns interest in 91 oil wells and two gas wells, a majority of them adjacent to Teapot Dome reserves in Wyoming.

•

Oil and gas leases on 56 tracts of Navajo tribal lands in San Juan County, N. M., will be put up for competitive bidding on Feb. 23.

The tracts cover 95,130 acres, some

Oil Men Best Chickens in Egg Row

Mississippi chickenhood suffered a severe basting in court recently when Jackson County Judge Russell D. Moore held that a Smith County flock's sensitive squawks about nearby oil-exploration blasting were compounded more of peep than peck.

Farmer W. E. Bridges had cried "fowl!" and sued Texaco Inc. for damages, claiming that the noise of seismic dynamiting operations near his hen house had caused his feathered sorority—2,600 strong—to stage a layoff demonstration that resulted in a drop in his egg revenue. But Texaco unscrambled the dispute by introducing evidence that farmer Bridges' hens started sulking a full seven days after the blasts occurred.

Judge Moore ruled in Texaco's favor, but added that further blasting should take place no closer than 200 yd. from the hen house. The case roosts—rests.

Sales

MINIMUM OF $8000 ON DRY HOLE COMPLETION TEST

LYNES Wildcat Open-Hole Test Service takes the gamble out of completion of questionable 8800-ft. New Mexico wildcat. Drill stem tests on a wildcat in the Artesia, New Mexico, area had been inconclusive so the operator was faced with the choice of setting casing, perforating, treating the formation and recovering the casing if the hole was a duster or of abandoning the well without additional testing at the risk of passing by a producer OR HE HAD THE CHOICE OF RUNNING A LYNES OPEN HOLE INFLATABLE WILDCAT TEST STRADDLE PACKER THAT WOULD ALLOW HIM TO MAKE POSITIVE WELL TESTS AT A VERY LOW COST.

Choosing the LYNES Test Service, the operator saved $8000 by eliminating normal completion and abandoning expense to conclusively prove the well dry—savings up to $20,000 have been reported. Had the well proved a producer, he would have saved a well that he might otherwise have abandoned rather than risk the cost of completing a dry hole.

The swab test through a LYNES Tool is more positive than a D.S.T., but the potential of the LYNES Test does not stop there. Stimulation treatment is a normal progression of this test—then further Swab Testing.

Many operators do not D.S.T. where results are expected to be questionable. They drill to T.D., then come back up hole testing all shows.

Single element tools can be opened above or below and straddle tools can be opened above, below or in between. LYNES Inflatable Tools can be reset anywhere in hole without tailpipe or formation anchor.

LYNES Inflatable Packers have endless variety of uses in testing, treating and production operations in the field. The inflatable sealing element will expand up to twice its run-in size to effectively seal in open hole or casing and will hold high differential pressures from above or below.

Ask your LYNES man to explain the many uses of LYNES packers to save you money on your well completions.

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immediately south of Fruitland around Utah Construction & Mining Co.'s coal lease, and others in townships 30-31 north, ranges 20-21 west.

•

Otis Engineering Corp., manufacturers of oilwell production and safety equipment, has started construction on its new 68-acre general office and manufacturing facility at Carrollton, near Dallas.

The new Otis plant will consist of a two-story office, research and engineering building of 80,000 sq. ft., a 100,000-sq.-ft. manufacturing plant, and an 8,000-sq.-ft. fleet maintenance depot, already in use on the location.

•

A 300-mi. "slice of California," being cut for a gas pipeline from the Oregon border to Antioch, Calif., will give University of California soil scientists an opportunity to study soil formation in detail. The trench, 8 ft. deep, will be the final link in Pacific Gas & Electric Co.'s 36-in. Alberta-to-San Francisco gas pipeline. The cut will range from a 6,000-ft. elevation to near sea-level.

The scientists say the detailed transect analysis will afford an unusually precise picture of subsurface soil composition, enabling them to study how climate, vegetation, parent material, topography, and time interact to form soil.

•

Stanton Oil Co., Ltd., San Antonio, has purchased 15 additional wells from Western Drilling Co., Lubbock.

J. L. Stanton, president, had previously announced the purchase of 19 wells in Western's Sunray-Wright lease, Levelland field, Cochran County, West Texas.

The new purchase includes 7 wells in Levelland field; 5 in Anton-Irish field, Lubbock County; and 3 in Sunniland field, Lynn County.

•

Atlantic Develops Compact 'Thumper'

Atlantic Refining Co.'s Dallas Laboratories fabricated this truck-mounted "thumper" unit, which drops a 5,300-lb. kirsite metal slab to create sonic shock waves for seismic oil exploration. (Kirsite is a metal similar to lead, but with greater impact strength).

Although the "weight-drop method" is not new as a substitute for shot-hole blasting, Atlantic feels its unit is noteworthy because of compactness and maneuverability.

The weight and framework can be lowered on the truck bed for transit. A switch on the slab relays the precise instant of impact to truck-mounted recording equipment, some 3,000-ft. away. The subsurface wave reflection is picked up by standard geophones and recorded on magnetic tape.

Experiments conducted with the unit near Carlsbad, N. M., showed that from ten to 100 drops were needed to produce a single trace line on the seismic recorder.

The test results led Atlantic geophysicists to predict that the economy of the method over the faster shot-hole technique will gain it wider acceptance in the future.

Drilling Highlights

Southwest Texas—Sunray Mid-Continent Oil Co. No. 20-E. J. A. McFaddin, Foster Lewers survey, A-255, Victoria County, was completed as the world's second sextuple producing well—and the first sextuple to flow both oil and gas. The well, located in McFaddin field had an open flow of 98,400,000 cf/d of gas and 126 b/d of oil from the six zones, ranging in depth from 2,835 to 5,285 ft. The company also made the industry's first sextuple last May, in adjoining Jackson County (PW—May 27'60,p24). In the second sextuple, three strings of 2⅞-in. tubing were run and used as casing. Sunray ran 1¼-in. tubing inside the 2⅞-in. casing, using 2½-in. aluminum retrievable packers. Each string of the tubing bundle was finaled as a conventional dual completion. Of the six productive zones, two of them are discoveries. The 2,800-ft. sand, a discovery, perforated at 2,835-40 ft., flowed 7.9-million cf/d of gas; the 3,400-sand, perforated at 3,456-60 ft., flowed 27-million cf/d of gas; the 4,050-ft. sand, perforated at 4,036-40 ft., flowed 6-million cf/d of gas; the 5,050-ft. sand, perforated at 5,027-32 ft., flowed 12.5-million cf/d of gas; the 5,150-ft. sand, perforated at 5,110-15 ft., flowed 45-million cf/d of gas; and the 5,300-ft. sand, a discovery, perforated at 5,280-85 ft., flowed 126 b/d of oil through 9/64-in. choke.

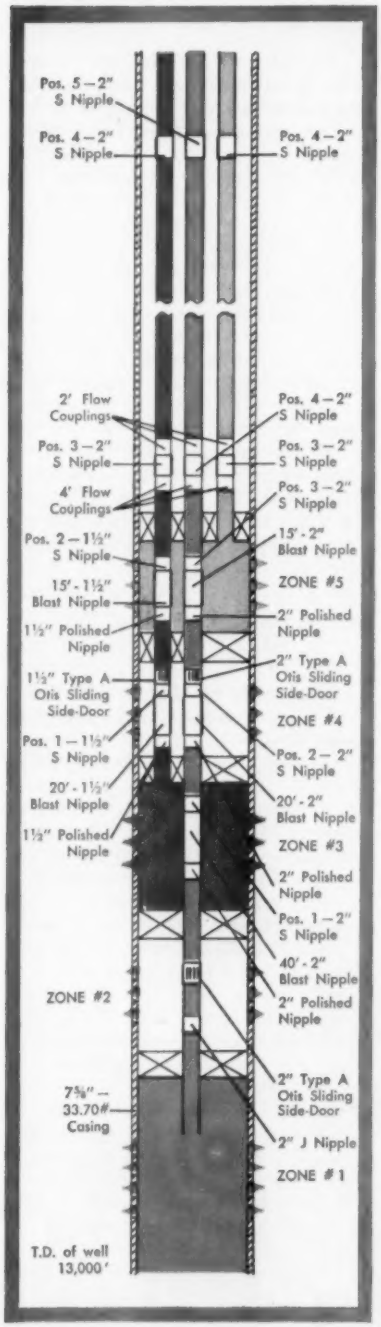
Alberta—Shell Oil Co. of Canada, Ltd., No. 12 Waterton, lsd 7-5-5-1w5, in the Waterton gas area, flowed 2,100 b/d of 40-gravity oil and 6-million cf/d of gas through open hole at 12,950 ft., 2 mi. west of Shell No. 7, in the Waterton field.

Also in Alberta, Hunt Oil Co. et al No. 16-27 Buffalo Lake, lsd 16-27-39-21w4, flowed at an estimated 75 bbl. of oil per hour through ½-in. choke and perforations at 5,507-51 ft. in the D-3 reef. The prospect, 2 mi. northwest of Erskine pool, will be drilled ahead.

Louisiana Offshore—Gulf Oil Corp. No. 1-E OCS-0464, Block 152, South Timbalier Area, LaDourche Parish, was completed for 360 b/d of 31.8-gravity oil through 9/64-in. choke and perforations at 12,484-96 ft. The discovery is 18 mi. southeast of the South Timbalier Area Block 54 pool.

OTIS PRODUCTION NEWS

Volume II, Number 1 **Otis Engineering Corporation • Dallas** *Production Equipment and Services*



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Alternate Zone Triple Completion Shows Economic Advantages of Using Otis Equipment and Wire Line Services

LAFAYETTE — This offshore, multiple-zone gas well, located off the coast of Southern Louisiana, illustrates the economic advantages of using Otis sub-surface flow control equipment and wire line services.

The cost of the installation, including the tubing safety valves, sleeves, nipples, and other Otis sub-surface equipment as shown in the accompanying diagram, totaled slightly under $12,000 — or about $65,000 less than what it would cost to move a workover rig onto the well to deepen it and recomplete the lower zones, had the well been drilled and completed differently. As equipped, this well can be produced until all five zones have been depleted, with only occasional wire line service to permit production from each of the different zones.

T.D. of the well was approximately 13,000 feet with five different zones of potential production below 12,600 feet. When called to engineer the completion, Otis specialists were asked to design an installation that would permit alternate production of three of the zones through the long string and one through each of the other strings, or two zones through the long string and two through the intermediate string, with the top zone to be produced through the short string.

Two single packers were used to isolate zones 1 and 2 and a Type A Otis Sliding Side-Door and Type J Otis Landing Nipple were made up in the tubing between the two packers. This arrangement will permit the bottom zone to be produced first through the long string, and then zone 2 by setting a Type PJ Otis Plug Choke in the landing nipple and shifting the sleeve in the Sliding Side-Door®. The Type PJ choke is designed to hold pressure from either direction.

A blast nipple with a Position 1 Type S Otis Landing Nipple above and a polished nipple below was designed into the long string opposite zone 3. This is the zone to be produced through the intermediate string. In the event flow from zone 3 should cut through the blast nipple, the landing nipple and polished nipple will be used to pack off the hole and permit continued production of either of the lower zones through the long string. The landing nipple above the blast nipple may also be used to land a plug choke in the event both lower zones deplete sooner than anticipated and the operator decides to produce zone 4 through the long string.

Otis sliding side-doors were designed into both the intermediate string and the long string between the packers isolating zone 4. This will permit selective production of that zone through either string of tubing. S nipples, blast nipples, and polished nipples were also made up on both the intermediate and long strings opposite zone 4 to provide the tubing with the same protection as described for zone 3.

In that this was a gas well, S nipples with flow couplings above and below were made up in all three strings of tubing, immediately above the top packer, to accommodate Type FS Otis Tubing Safety Valves. This provided Storm Choke® protection for each string. By locating the safety valves just above the top packer, the operator will be able to carry on a corrosion inhibitor program without pulling the safety valves. S nipples were also located in each string approximately 1,500 feet from the surface for plugging purposes until gathering lines could be laid.

This Otis-engineered completion was designed to provide the ultimate in economical, versatile, and efficient alternate-zone production. For more information on alternate-zone, multiple completions or for help with any other specific completion problem, call the Otis office nearest you or write Otis, Dept. 1-W, Box 35206, Dallas 35, Tex. Experienced Otis specialists are ready and anxious to provide you with a "packaged" well completion service.

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How to Give Away a Million Dollars

Corporate philanthropy—a slowly maturing management function—is filled with pitfalls and problems. Here is how Shell Oil has worked out its own "pattern for giving."

From behind a bald announcement last month the conscience of a company shone through. Shell Oil Co. —through a new aid-to-education program—disclosed how it hopes to live up to a "social responsibility."

In an economy dominated by the profit motive, Shell believes that industry has a duty in directly assisting society, says Monroe E. Spaght, president of the company.

It expresses this belief through its Shell Companies Foundation, which last month announced a program of sending top-level high school teachers back to college for a year to learn the modern curricula emerging in mathematics and science.

Through this program (which is just part of Shell's over-all aid to education), the Foundation hopes to create a nucleus of teachers who will provide leadership in improving high school curricula.

Shell's new program is symptomatic of a general industry awareness of its responsibility toward society in general and education in particular.

In a matter of weeks, the extent of this awareness will become apparent.

The American Petroleum Institute is just now putting the finishing touches to a survey of oil-company aid to education.

Preliminary findings show that the industry has stepped up considerably its financial contributions to colleges and universities.

Compared to 1956, when a previous API survey was conducted, oil company aid to education has advanced "substantially," an API spokesman says. The oil industry—now donating about 10% of total industry aid to education—has also shown an improvement compared to other industries.

Companies—just like people—are always faced with one nagging question when they give money away: Are we giving the money to the worthiest cause?

W. M. Upchurch, Jr., secretary of the Shell Companies Foundation, recalled for PETROLEUM WEEK a comment that Andrew Carnegie once contributed on this subject. Carnegie said: "It's easy to give money away but to give it away intelligently takes as much business skill as earning the money in the first place."

A foundation or a company is faced with this challenge in a number of ways, Upchurch says.

How can it defend its choice of colleges when extending research grants (why was XYZ college left out)? Should the foundation seek out unusual projects that merit assistance? How much of the contribution burden should it leave to the government? When can it know that it is not giving money toward a cause in which it may have a selfish interest?

Shell believes that it has found satisfactory answers to this key problem. One is its attempt to concentrate on the nation's "greatest need."

A special Foundation committee periodically attempts to diagnose the country's most fundamental ill and suggest financial aid to overcome it.

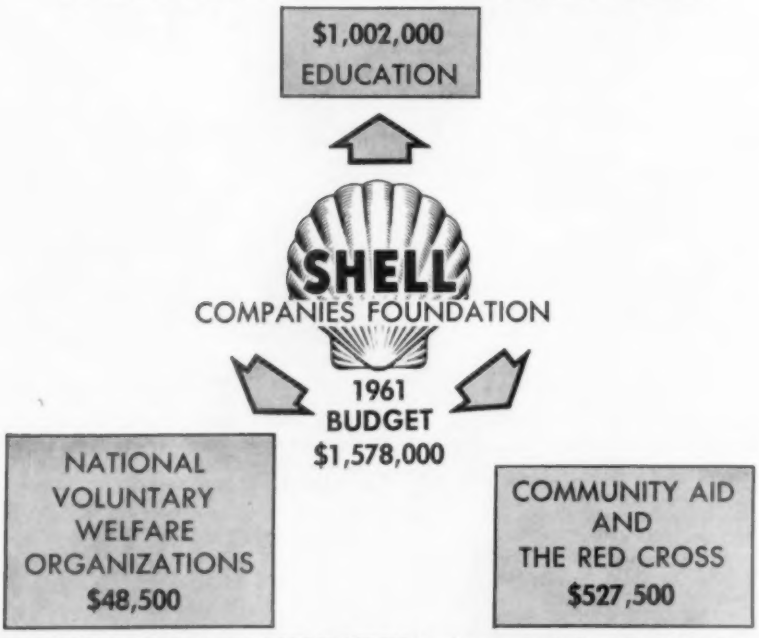
This approach has drawn funds into areas that have now become popular "causes." But Shell believes that it has pioneered in finding recipients for its aid.

Thus, since the early 1940s, Shell has given money toward increasing the nation's reserve of professionally trained scientists.

As the problem areas have shifted, Shell has shifted with them. Research grants to boost badly needed research efforts at colleges and universities were followed by financial assists to further the professional development of college teachers.

Eventually, Shell directed its attention toward high school teaching. Scholarships to future teachers, fellowships to present teachers, and now

A Look at Shell's 1961 Donation Plans



THE SHELL COMPANIES FOUNDATION carries out the bulk of Shell Oil Co.'s philanthropy. Formed in 1953, it has given away more than $8-million, if you count this year's budget. Most of its aid is directed toward education, but an important segment is represented by Shell's "Partnership in Citizenship," through which funds are donated to communities where Shell employees live.

12-month residencies for teachers have been the result.

There is another Shell solution to the problem of deciding on worthwhile recipients for its aid: The plan of "structured" giving.

This simply means that Shell concentrates its aid in a small number of preference areas. And by continually donating to these areas—and watching them mature—Shell can see the fruits of the philanthropic seeds it sows.

Although a considerable percentage of the Foundation's donations to education, for example, is "free aid" (used at the discretion of university officials), much of it flows toward the "cream of the crop" among future teachers.

These are the students who receive Shell's merit scholarships, and (as teachers) receive Shell assists and merit fellowships.

Continuity to these programs will be carried even further by the Foundation's 12-month residencies. First crack at these awards will be given to the 550 high school teachers who have attended Shell summer seminars at Stanford and Cornell Universities.

And next year, Shell plans to introduce a new aid program: A fifth year of college training for future teachers. These awards will be extended to the 25 students who will then be completing their four-year scholarships.

The use of a foundation, which is a rarity in the oil industry, is another way in which Shell has found it can increase the effectiveness of its philanthropy.

By keeping the foundation supplied with several years of cash requirements, Shell frees the foundation from the vagaries of the economy.

As a result, the foundation can act as a sort of balance wheel in the nation's over-all fund-raising drive. Whereas private citizens (who chip in 78% of the nation's total donations) may reduce their aid in times of high unemployment, the foundation can maintain its level of aid during these times.

There is always, of course, the decision of how much to contribute to worthy causes. This year, the Foundation will give away $1,578,000.

In reaching this figure, the foundation may consider two avenues of decision.

One is "to look at philanthropy from above," as Upchurch says, "to compare Shell's aid programs with those of other companies."

Generally, Shell has kept its donations at about 1% of total earnings before taxes. This, it finds, compares quite favorably with other companies.

"But we must also look at philanthropy from below," says Upchurch, "to where the aid is needed."

This is difficult when it comes to education. There is seemingly no end to the financial needs of education. "In this area, we just try to give as much as we can," says Upchurch.

But in extending aid to communities, for example, Shell can be guided by the fund-raising goals of town leaders.

Shell directs its aid toward communities wherever Shell employees live. And in recent years, it has donated up to 90% of what it calculates its employees' commitments to be.

By encouraging its employees to give their full share anyway, Shell believes that it is plugging the gap left by families who fail to fulfill their responsibilities.

Shell uses a similar guide-formula approach in extending aid to hospitals and the Red Cross.

What's New / IN MANAGEMENT

The next step for computers—and its a lofty one—is up to the board room to aid directors with high-level planning.

At least one major company is about to tell its directors the results of its studies in this area.

A spokesman admits that the computer will be used—not to find optimum answers, as in distribution routing—but to offer a "range of possible answers" to problems filled with many unforseeable complications.

•

Socony Mobil Oil Co.—faced with trying to keep its far-flung employees abreast of current events—has gone into the newspaper business.

It has converted its house organs—the Mobil World and the Mobil Marketer—into a fast-moving monthly tabloid.

•

Two announcements last week added momentum to the increasing drive by oil companies to air education.

Richfield Oil Corp. (L.A.) revealed that it has started a program to assist western colleges and universities.

Each year, it will give $60,000 in unrestricted grants to private colleges and universities, and an additional amount (all totaling $110,000) for other aid to education.

At the same time, the Midwest Oil Foundation (supported by Midwest Oil Corp.) announced a $5,000 contribution to the Colorado School of Mines.

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Automation Improves Batch Processing

Making a batch process automatic, in a refinery or a petrochemical plant, will result in a substantial saving, particularly when the sequence of operations can be programmed, according to Forrest E. Head, engineering specialist of Monsanto Chemical Co.

There are many cases where batch processing cannot be replaced by the usually more efficient continuous operation. This is true, in particular, when the chemical reaction is slow as compared to other portions of the process, or when small batches of end products must be manufactured, each with different specifications. This is the case, for instance, in the synthetic rubber industry.

At the recent automation conference of the Instrument Society of America, in St. Louis, Head showed how the installation of automatic programmers on batch processes, at two of Monsanto's plants, increased production by 20% and 25% respectively, and paid for itself in less than six months.

Head also presented a guide for the installation of programmers elsewhere.

Automatic programming is efficient because it eliminates periods of waste, which are difficult to avoid with manual control.

It also makes the operation of the units much more pleasant for the workmen: In every case, Head said, the working force had welcomed the programmer.

To obtain maximum production from a batch process is difficult with manual control, especially when many reactors work simultaneously, because:

- The operator may be legitimately away from the reactor at the exact moment when the batch is ready and should be advanced to the next stage.
- The operator may wait to advance a batch from one reactor until another reactor is ready, so as to make only one trip to the controls.
- The reflux period may be lengthened or shortened, to suit the operator's immediate schedule.
- It may be difficult for an operator to discern at once small differences in the physical conditions of a process, and rectify them.

Problems like these limit the throughput, and result in undesirable differences between batches.

The programmer is a "memory circuit" associated with a stepping switch that controls the manipulations of the process equipment.

The equipment may be made as automatic as desired. For example:

- It may contain an automatic cutoff system for feedstock measuring equipment. The operator may start the loading, but it will be stopped automatically at the right time.
- Motorized valves may be used to replace all or part of the most frequently used hand-operated valves. These valves may, upon an electric signal, be positioned by the operator from the control panel, or they may operate automatically.
- An automatic timer may tell the operator when the refluxing period is over, or it may actually stop the reflux.
- The pressure, or vacuum, in a system may be maintained automatically at a precise figure, eliminating human error.

The programmer can be made significantly more effective when it is controlled by the end point of each successive stage in the process, instead of being controlled simply by a time schedule.

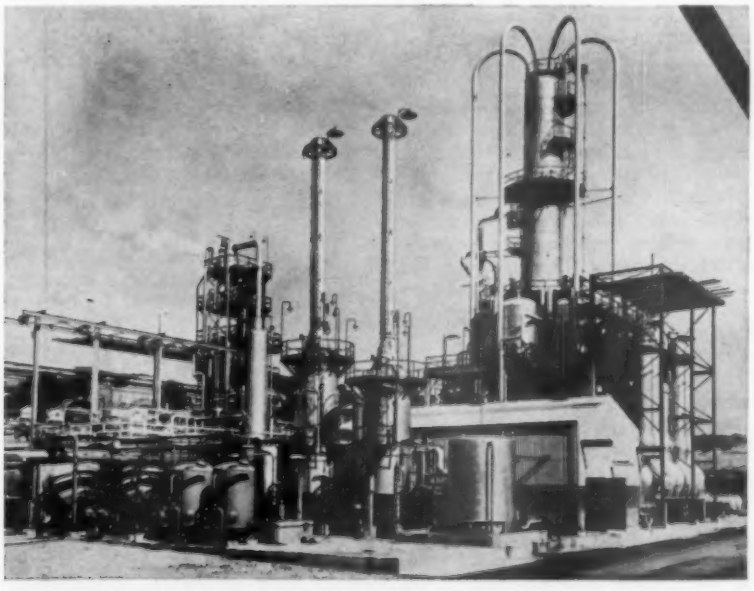
In each stage, the programmer sets up preselected operating conditions, and then waits until the required end point of these conditions is reached. At the end point, a signal from the process causes the mechanism to advance the batch into the next process stage.

This type of programming is more profitable, because, with the time-schedule system, no attempt is made to see that each stage has actually reached the prescribed end point in every batch. Thus, there may be considerable differences, with resulting "off-specification" losses.

The devices for detecting the end points of each stage are electrical contacts actuated by measuring instruments.

For the more common physical measurements, industrial devices like temperature, pressure, level, and flow switches are available.

For less common measurements, electronically balanced instruments,



Europe Speeds Up Phthalic Production

Phthalic anhydride to make resins used in the manufacture of paints is produced by the fluid catalytic process at the Cengio (Italy) plant of Aziende Colori Nazionali Affini, a subsidiary of Montecatini.

The 22-million-lb.-per-year ACNA plant was recently completed by Badger Mfg. Co. The process is licensed exclusively by Badger under an agreement with Sherwin Williams Co. (PW—Nov.4'60,p34).

equipped with a cam-operated switch, and used with a recorder, may be required. These are particularly valuable when the sensitivity and the reproducibility of standard industrial switches are inadequate for detecting the end point of a certain stage of a process.

A batch process must have three basic characteristics, however, to be a good candidate for a batch programmer, Head pointed out:

(1) Production rate must be limited only by operating conditions.

(2) Mechanization of the physical manipulations must be feasible.

(3) It must be possible to centralize control of these mechanisms—for example, at one instrument panel.

There are still many instances, in today's petrochemical industry, where the physical characteristics of a process make automatic programming very difficult.

How difficult this may turn out to be was demonstrated at the ISA conference by Fred A. Mauger, Naugatuck Chemical division of U.S. Rubber Co., who reviewed the control system of a batch process for the making of synthetic rubber.

Here are several of the difficulties:

- Butadiene and styrene, the two main feedstocks, are highly flammable hydrocarbons.
- There is a tendency to foam in the reactor where polymerization takes place, and in the stripper, where unreacted monomers are removed and latex concentrated. Because of the heavy foam, measurements within the reactor—based, for example, on liquid levels or density readings—cannot be made. Lines and pumps, to circulate some of the material into outside measuring vessels, must be used.
- All the surfaces exposed to latex become coated with rubber. Neither thermometers, thermocouples, nor flow meters can be depended on if any accuracy of measurement is desired.
- Latex freezes readily in cold weather, and all transfer lines must be traced (with hot water or steam lines) and insulated.
- Synthetic rubber manufacture is an exothermic reaction, generating 515 Btu. per lb. of rubber polymerized.

In such cases, a combination of automatic and manual control may be the wisest solution.

In synthetic rubber batch manufacture, one part of the system that is entirely automatic is the fire-protection device. It is pneumatic—using 30-psi. air—and operates a network of sprinklers as soon as the temperature at any of the fire-detection fuses reaches 135F. Then all valves of the feed system close automatically in less than 30 seconds.

There is also an all-automatic gas-detection device, which shuts off all electric motors in case of a gas leak.

And an automatic installation generates an "inert gas," with precautions to avoid either excessive combustible gas or oxygen in the generator exhaust.

"More fully automatic operation for the control of polymerization would be desirable," Mauger said. "But the complete cost per reactor would have to be low, well under $5,000. This is likely to come about when more of the present uncontrollable variables are better known and eliminated."

As a cause of engine rumble . . .

Burning Rate Shares Guilt

Recent thinking has been that rumble in automobile engines is caused by ignition of combustion deposits. The new theory is that the burning rate of the fuel is also an important contributing factor.

V. F. Massa, of Esso Research & Engineering Co., told the recent meeting of the Society of Automotive Engineers, in Detroit, the results of a study of fuel performance in spark-ignition engines in relation to abnormal combustion phenomena.

The study was conducted at Esso's Linden (N.J.) laboratories, in four distinct engines.

Reference fuels, used to evaluate rumble intensity, burn at different rates. That difference must be taken into consideration, as much as the difference in formation of combustion deposits, Massa said.

Reference fuels, used for rumble studies, are mixtures of leaded iso-octane and benzene (LIB), in proportions varying from a pure benzene (zero LIB rating, and a great propensity to form deposits) to pure iso-octane (100 LIB rating, and no deposit-forming propensity). Tests in which the timing of the peak pressure in the engine could be observed, revealed that there are differences of as much as 10% to 14% between the burning rates of these reference fuels. These differences explain why there are differences in rumble intensity when these fuels are used, even when there are no deposits.

As a result of these tests, the rumble induced by the high burning rate of certain fuels can be eliminated by a reasonable retardation of the ignition timing, Esso found.

The tests showed that benzene was more easily ignited than iso-octane. Therefore ignition timing was retarded until the average peak-pressure in the cylinders with benzene coincided with that shown when using iso-octane. This required a change of five crank-angle degrees.

On the other hand, phosphorous-type additives, which are effective in reducing the rumble caused by deposit ignition, have no effect on the rumble caused by high fuel burning rates.

The presence of phosphorous additives changes the harmful lead oxides and lead oxyhalides to lead phosphates. These are much less active in catalyzing the burning of the carbonaceous material in the deposits, and, in the final analysis, it is the burning of this carbonaceous material that is the source of surface ignition.

Only a satisfactory combination of engine ignition timing and of fuel quality can therefore eliminate the objectionable rumble.

Rumble-free operation up to a compression ratio of 12 to 1 is possible with a "clear" gasoline. However since the elimination of TEL does not seem economical in modern engines, fuel properties as well as engine adjustments must be controlled, if rumble-free operation is desired, Massa reported.

Fireproofing Makes Plastics Safer

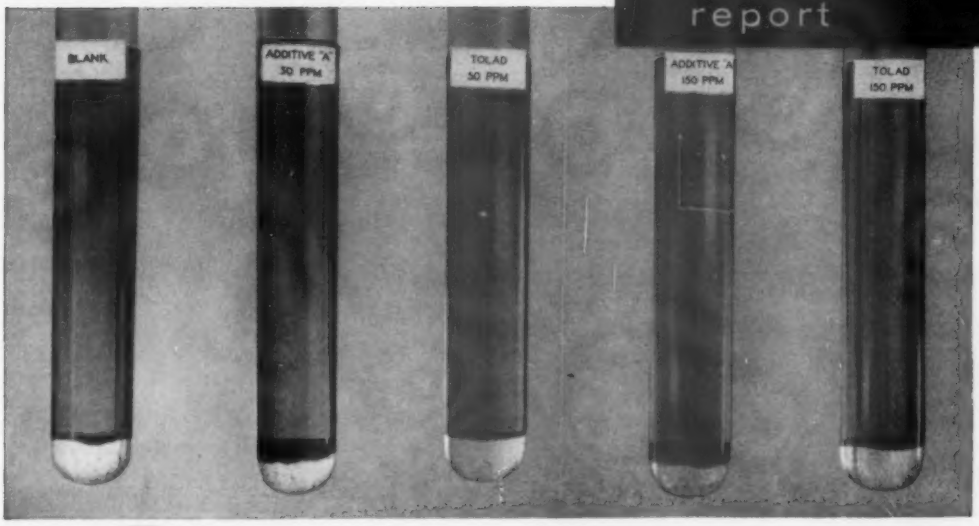
Because the use of plastics as construction materials and for home appliances is spreading fast, much work is being done to make them heat-resistant and self-extinguishing, if not fully fireproof.

To comply with building codes and regulations, and to make the use of plastics safer in homes, it is essential that one of their main drawbacks—their combustibility—be eliminated.

Engineers of Union Carbide Plastics Co., division of Union Carbide Corp., described several new, fireproof plastic

another

TRETOLITE SERVICE report



TOLAD* *Fuel Additive maintains maximum water tolerance*

Compare the quantities of sludge in the test tubes. The TOLAD-treated fuel samples show much less sludge than the samples treated with a well-known competitive additive.

In the Tretolite Company research laboratories TOLAD Fuel Additives are continually compared with other commercial fuel additives. In test after test, fuels treated with TOLAD have had superior water tolerance.

WHY IS WATER TOLERANCE IMPORTANT?

When agitated, No. 2 fuel oils and diesel fuels form sludge if they contain water and insoluble residue. Some additives actually impair water tolerance.

HOW DO FUEL ADDITIVES AFFECT WATER TOLERANCE?

Additives which are primarily dispersants allow insoluble residue to form freely, but disperse it throughout the fuel. However, they also disperse any water which the fuel may contain, thus promoting emulsification, and eventually, sludge formation.

WHY DO TOLAD ADDITIVES MAINTAIN MAXIMUM WATER TOLERANCE?

TOLAD additives are primarily *inhibitors*. The normal water tolerance of the fuel is not impaired, and the residue problem is corrected by inhibition, rather than dispersion.

The use of TOLAD additives enhances marketability, and practically eliminates burner-tip fouling and filter plugging. In diesel fuel injection systems, TOLAD treatment prevents fouling, increases nozzle life.

In commercial application, TOLAD *has provided these advantages at costs under those of the additives it replaced.*

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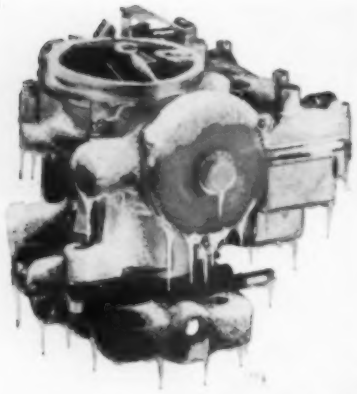

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products at last week's Annual Technical Conference of the Society of Plastics Engineers, in Washington.

One major step has been the development of heat-resistant phenolic plastics.
This may result in reversing the recent downtrend in the use of phenolics.

"Phenolic production is estimated at 570-million lb. in 1960, down 55-million lb. from 1959," says R. K. Turner, UCP president. "But phenolic is a resin 'too good to be outmoded,' and one of the major accomplishments of the year has been the recent development of heat-resistant phenolics."

These new phenolics will stand temperatures as high as 500F for periods four times as long as conventional phenolic materials.
And post-curing of the new material increases its resistance at high temperatures still further.

These phenolics should be useful for missiles and high-speed aircraft; for miniaturized electric instruments, where more power, concentrated in a smaller space, leads to higher temperatures; and as replacement for ceramics and metal parts, because of the lighter weight of the phenolics.

A second category of safer plastics: self-extinguishing polystyrenes with several levels of impact-strength.
Conventional polystyrene burns readily when submitted to a flame, for example to a Bunsen burner. The new, self-extinguishing polystyrenes, on the other hand, do not support combustion at all when exposed to such a flame providing their thickness is 20 mils or more.

High impact strength is imparted to these polystyrenes by addition of synthetic rubber.
This addition can be performed as a graft polymerization, while the styrene is being polymerized, or as a simple mechanical blending, during processing.

Certain important qualities of the polystyrenes are improved, in proportion to the rubber content. Their price, also, goes up with additional rubber content.

What's New / IN PROCESSING

Another company is entering the field of antiknock gasoline compounds. Stepan Chemical Co., Northfield, Ill., has been licensed by an Italian company to manufacture tetraethyl and tetramethyl lead in the U.S., according to a process used in Trento, Italy.

Three companies in the U.S. are making—or getting ready to make—TEL and TML. They are Ethyl Corp., E. I. du Pont de Nemours & Co., and Chatham-Reading Chemical Corp.

Stepan has been producing various chemicals since 1932, was incorporated in 1940. It specializes in surfactants, emulsifiers, sulfated alcohols, and many other organic chemicals.

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A $1.4-million credit from the U.S. Export-Import Bank will be used by United Carbon de Venezuela to purchase U.S. equipment for its new carbon black plant in Valencia, Venezuela. The credit was awarded to the new company's parent, United Carbon Co.

Total cost of the plant is expected to be $3-million. Its initial capacity will be 20-million lb. per year of six major types of furnace blacks, primarily for use in rubber and tire production.

United Carbon says the new plant will increase current production of South American carbon black by 40%.

Goodyear, Firestone, U.S. Rubber, and General Tire have plants in Venezuela.

•

Plymouth Oil Co. is the latest newcomer in the field of petrochemicals: It will have an aromatics plant on stream at its Texas City refinery in July.
The $2.5-million facility will recover benzene and other aromatics from Gulf Coast crudes processed at the refinery.

•

Atlantic Refining Co. and Pure Oil Co. will jointly construct a 50-million gal.-per-year aromatics unit at Pure's Nederland (Tex.) refinery.
The largest part of the unit's production will be benzene, and the rest toluene and xylene.

M. W. Kellogg Co. is the constructor. Completion is expected in December.

IF TIRES COULD TALK THEY WOULD TELL YOU:

"Very close to 50 percent of the butadiene required for synthetic rubber in the U.S. can be produced by plants using the versatile one-step Houdry Dehydrogenation Process.

"And most of this capacity has gone on stream since 1957, based on a background of serving U.S. industry for over 15 years. It is also producing butadiene in Europe, and two additional units will go on stream in Europe and Asia this year."

By direct dehydrogenation of butane, the Houdry Dehydrogenation Process can produce butene as well as butadiene, and produces other mono- and diolefins from the corresponding saturated hydrocarbons. This flexibility allows processors to switch their output to meet changing market conditions, and the changing demands of the chemical industry. Adapting the process to yield a changed end product is simple and economical.

A description of the Houdry Dehydrogenation Process and the economics of its operation will be sent promptly, on request. When you write, you'll find it well worth your while to ask for an up-to-date outline of Houdry services, too.

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Mideast Output Up 53% in Four Years

An accelerated growth rate in the Middle East's record oil production in 1960 hiked its four-year gain to nearly 53%.

Output last year averaged 5,235,000 b/d, up 14.3% from 1959. It marked a 52.7% climb from a 3,430,000 b/d average in 1956, the last "normal" year preceding the Suez crisis.

Last year's increase of 14.3% was nearly double the 1959 gain of 7.7% over 1958.

The growth in output was larger in 1958—20.6%—but that reflected the 1957 disruptions in the oil flow.

The over-all gain last year was reflected in individual Middle East producing states in a more even growth pattern than in 1959.

In that year, for example, production dropped off, though slightly, in Kuwait and Qatar. Gains in other states ranged from a low of 7.9% in Saudi Arabia to a high of 43.9% in the Neutral Zone. In between were Bahrain, up 10.9%; Iran, up 12.4%; and Iraq, up 17.1%.

In 1960, there was no drop, though Bahrain remained static. Others all climbed fairly uniformly by 13.5% to 17.5%, with the exception of Qatar, which only just about recovered a 2.8% drop in 1959.

Over the past four years, Kuwait remained secure in the No. 1 spot among the Middle East's leading producers, though Iran's growth rate was a spectacular 96.7%, double Kuwait's in the 1956-60 period.

Iran was once the Middle East's top producer—a position it lost during the nationalization shutdown—and wants to regain (PW—Dec.9'60,p14).

But it still ranks third, after Saudi Arabia, even though its output has been nearly doubled to a record annual average of over 1-million b/d since 1956, the second full year of the resumption in production.

Iraq's gain in the 1956-60 period is also particularly notable. It reflects not only an absolute 52.1% increase but also recovery from a sharp drop during the Suez crisis.

With its Mediterranean pipeline outlets crippled by sabotage, Iraq's oil production plummeted 30% in 1957. Its 1956 level was not regained until the first quarter of 1958.

A steady and substantial climb in the Neutral Zone marked a 328% gain for this newest gulf producing area in the four-year period.

Production thus far is entirely onshore. New offshore production established by the Japanese is slated to start this year, possibly in the second quarter, according to the latest reports from Tokyo.

Bahrain, a much older producing area, has gained 50.3% over 1956, though 1960 production remained at the 1959 level.

Here's How Middle East Output Has Climbed

(In thousands of b/d)

	1960 Avg.	1959 Avg.	% Change 1959-60	% Change 1956-60
Kuwait	1,623.7	1,383.3	+17.3	+ 48.6
Saudi Arabia	1,247.1	1,095.4	+13.8	+ 26.5
Iran	1,047.0	923.0	+13.4	+ 96.7
Iraq	962.4	847.9	+13.5	+ 52.1
Qatar	173.7	169.5	+ 2.5	+ 39.7
Neutral Zone	136.1	115.8	+17.5	+328.0
Bahrain	45.1	45.1	0	+ 50.3
Totals	5,235.1	4,580.0	+14.3	+ 52.7

Other Horizons Lure Libya Searchers

The Libyan oil search is going off in new directions, as oil companies push tests in concessions until recently untouched by the drill bit.

At least five wildcats are now being drilled on such concessions, far from any presently proved production. The pressure on oil companies to explore tracts coming under the oil law's relinquishment procedures (PW—Jan. 13'61,p41) is now off. Thus they can concentrate on newer concessions.

Esso Libya is rigging up to drill the first test on its Block 3 in central Tripolitania.

The rig to be used for the A-1-3 was moved onto the tract from Block 17, a concession on which its sister company, Esso Sirte, holds a 50% interest. (The remainder is owned by Libyan-American Oil Co., a subsidiary of Texas Gulf Producing Co., and W. R. Grace and Co.)

While the Esso tract has not yet been tested, wildcats have been drilled on surrounding tracts held by American Overseas, a Caltex affiliate; Shell, and British petroleum.

The nearest commercial production to the Esso tract is the Mabruk field in Esso Sirte Block 17, 80 mi. away.

Another American major, Mobil, is testing its first wildcat in Block 72 in southern Cyrenaica.

The test, A-1-72, was started last Fall and carried to a total depth of 9,737 ft. Test results are not available.

The tract is 80 mi. almost directly south of the recent Raguba discovery of Esso Sirte in Block 20. The Beda discoveries of Amoscas are approximately 40 mi. north of Mobil's concession.

A German independent, having abandoned its first wildcat as dry, last week was rigging to spud a second test on the same concession, Block 77, in the Fezzan province.

The firm, Deutsche Erodel, is operator on the tract which it holds in partnership with another German independent, Wintershall. The area is far south of any present producing areas.

In far-eastern Libya, British Petroleum last week was fighting lost cir-

culation at 5,115 ft. on the A-1 test in Block 65, Southern Cyrenaica, which it holds jointly with Hunt International.

The wildcat is the first of six to be drilled by BP under the deal with Hunt, the original concession holder (PW—Jan.27'61,p46). BP acquired a 50% interest in the block.

There is no commercial production within more than 100 mi. of the BP-Hunt block.

BP is also drilling a first test on Block 36. The tract is along the Mediterranean coast in eastern Libya, 300 mi. from the nearest commercial production.

Phillips Appears In Thailand Bidding

BANGKOK—Phillips Petroleum, a newcomer to Thailand, is expected to wind up as one of two leading contenders for rights to build a 28,000 b/d refinery that would be turned over to the government after a negotiated period of operation.

A dozen proposals were submitted in answer to Thailand's call for another company to build a plant under terms like those withdrawn by Indiana Standard (PW—Sep.30'60,p34).

Only six of these were considered worthy of study by the Board of Investment, which last week expected to cut the field to two bidders.

The Phillips proposal was submitted by Summit Industrial Corp., New York, which is now among Thailand's oil suppliers, along with Shell, Stanvac, and Caltex, the established marketers. Summit has been buying oil from American Independent Oil Co. for resale to government agencies.

The bidder reported in top spot so far is Thai Oil Refinery, newly organized by a local group that would get at least part of its crude supply from Shell.

The chairman of the new company is a member of the Board of Investment. Another board member is the director of the Fuel Oil Organization of the Ministry of Defense, the country's biggest oil consumer.

The company actually submitted two different proposals, declining to withdraw one of them.

Stanvac was the only established marketer that submitted a refining proposal in its own name, and this was rejected early in the study of the 12 bids. The rest were made by groups with unknown backing.

Kuwait Oil Capacity to Grow Still Further During 1961

Continuing expansion of Kuwait's substantial producing and export facilities is on the 1961 docket for Kuwait Oil Co., which boosted its oil output more than 17% last year.

The company, owned jointly by Gulf Oil and British Petroleum, wound up with crude output averaging more than 1.6-million b/d for 1960, after nearing 1.8-million b/d in at least one month of the year.

This year, KOC will spend nearly $30-million on exploration, development, and capital improvements, according to 1961 plans disclosed in the current issue of the company's house organ.

The "most notable" item will be completion of a bulk plant this year for LPG production with facilities for exporting some 6,000 b/d of propane and butane, according to Managing Director William Fraser.

Construction was started last August. Most of the estimated $9.8-million cost of the project will be incurred this year, said Fraser, with completion "we hope by autumn." Included are compression and fractionation plants, plus refrigerated storage and loading facilities at Mina al Ahmadi port.

The company plans to drill 39 development wells under an $8.4-million expenditure tagged for development of existing fields and the search for new structures. Five to six rigs will be continuously employed, Fraser said.

The program includes drilling 30 more holes in the Burgan field in southern Kuwait, three in the Minagish field 21 mi. to the west, and six in northeastern Kuwait in the Raudhatain-Sabriya areas. In northwestern Kuwait, a test now being drilled at Mutriba will be completed, and a deep test may be drilled in the Mityaha region.

New oil handling and export facilities will take $5.6-million of 1961 expenditures.

Half will be spent on oil gathering systems at Burgan and at Minagish, a "significant" discovery, made in 1959, for which KOC has been planning commercial production facilities (PW—Aug.19'60,p88).

The other half will go into expansion of exporting facilities, with a fourth berth for the North Pier among the improvements scheduled for this year.

Another $5.6-million will go into new construction, Fraser said, about half of it for employee housing and amenities.

Shell Has Potential Sahara Discovery

PARIS—A promising oil discovery has been indicated in an eastern Sahara tract in which Shell holds a 50% interest through two affiliated companies.

The wildcat, No. 1 Tin Fouye, is in the Takouazet permit held 50-50 by Creps and Cie. des Petroles d'Algerie. Shell owns 35% of the former firm and 65% of the latter. Thus its total share in the discovery equals 50%.

The remaining shares in the two firms are held by the French government and private companies.

The test flowed oil at the rate of 63 bbl. per hour in a series of tests at 4,265 ft. in the Devonian.

Creps, operator on the tract, described the discovery as "interesting" last week, but declined to give further information until the wildcat is completed.

The test is 137-mi. west of Zarzaitine, one of four fields near the Libyan border in which Shell holds an interest through Creps.

The test is also about 60 mi. west and slightly south of the Ohanet field discovered last year by Mobil and the French firm, Cie. d'Exploration des Petroles (CEP).

Creps is now drilling another wildcat on a different structure in the same permit area.

This test, the No. 2 Ohanet-Sud, follows a previous unsuccessful attempt, the No. 1 Ohanet-Sud, which Creps abandoned recently at about 8,700 ft.

Meanwhile, the Shell affiliate, Cie. des Petroles d'Algerie, has applied for a 2,600-sq.-mi. permit, Hassi Djafou, in the northern Sahara, about 60 mi. south of the Hasse R'Mel gas field.

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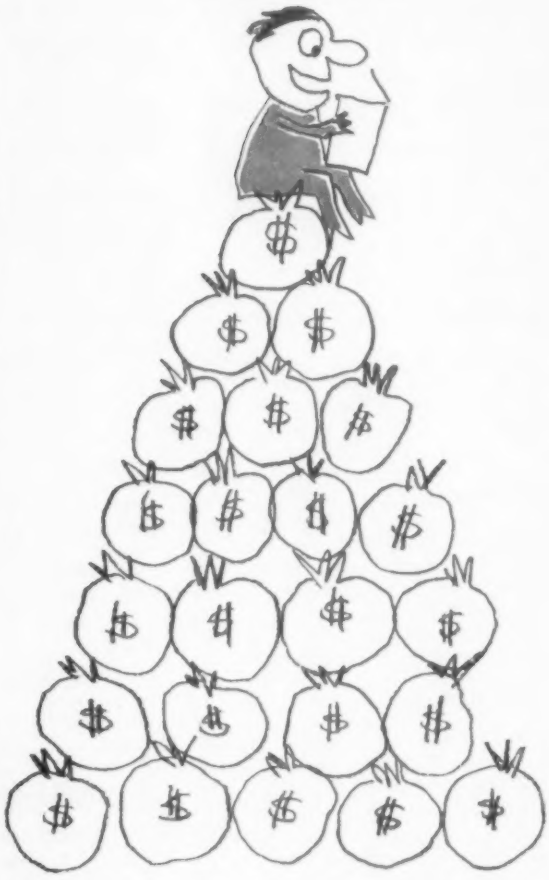

Most of us recall at least one classmate who "never cracked a book", but somehow got by. Wonder where he is today?

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Just recently, for example, a fascinating study in another field showed that the men who invested five hours a week in reading business magazines earned an average of 75 percent more than those men who spent only an hour in reading. It makes sense in your business, too . . . doesn't it?

Men who read more . . . earn more!

What's New / AROUND THE WORLD

PAPUA—Now that British Petroleum has withdrawn, other overseas firms may be asked to join Oil Search, Ltd., an Australian company, to continue exploration here.

Oil Search announced the BP withdrawal last week, confirming earlier reports (PW—Jan.13'61,p42). Stanvac, another former partner, pulled out last year. Oil Search, holder of 15% of the original shares, will employ DeGolyer and MacNaughton, of Dallas, as technical advisors for their continued search.

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BURMA—The government has authorized "temporary" imports of Russian products by the company it owns jointly with British oil firms. Payment will be made in local currency at rates reported well below current posted prices. Until Burma's refining capacity can be expanded, Russian gasoline, kerosine, and diesel oil will be imported by Burma Oil Co. (1954) Ltd., owned 51% by Burma and 49% by the Burmah Oil Co. group.

•

IRAN—The international Consortium has found oil for the first time at Pazanun, a gas field southeast of the Gach Saran oil field. No. 5-A Pazanun penetrated the oil-producing Asmari limestone at 9,080 ft. The Consortium said it may have to deepen the test and perhaps drill another to determine whether there is enough oil for commercial development.

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BRAZIL—The National Petroleum Council has approved the Petrobras plan to build a new 25,000 b/d inland refinery at Belo Horizonte with a 300-mi. crude line from Rio de Janeiro.

If the new administration approves the expenditure, the project will boost Brazil's refining capacity to 333,000 b/d by 1963, including the 90,000 b/d Petrobras refinery at Rio that will go on stream this August.

•

IRAN—The international Consortium announced plans to drill a wildcat at Bibi Hakimeh, 30 mi. south of Gach Saran field. It is also preparing to drill No. 1 Levan wildcat on Shuaib Island on completion of the No. 1 Suru, which has reached a record depth for Iran of 14,895 ft. at Bandar Abbas at the east end of its operating area.

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KENYA—In return for a ten-year prospecting license, BP-Shell has agreed to spend between $1.5-million and $2.8-million each year on exploration here. Since 1951 the firm has operated on four-year licenses, renewable annually. It has drilled two deep stratigraphic tests and is now rigging for a third.

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BELGIUM—Shell has been awarded exploration rights on 650,000 acres for which it applied over a year ago in the Walloon provinces bordering France and Luxembourg. Exploration in Belgium has been largely limited to stratigraphic drilling by coal mining interests in recent years.

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FRANCE—SN Repal, which has stakes in Sahara oil and gas production, is seeking its first exploration rights in France. It has applied for a 787 sq. mi. permit including offshore rights in southwestern France in Gironde, Landes, and Lot-et-Garonne. The company is owned 40.5% each by the Algerian and French governments and has a half interest in the Sahara's Hassi Messaoud oil field and Hassi R'Mel gas field plus extensive additional acreage in Sahara and Algeria.

•

PAKISTAN—Though the Pakistan market absorbs only 12,000 tons of lube oils a year, the government wants no less than four blending plants set up by major marketers there —Shell, Caltex, and Stanvac.

It is cutting off licenses for imports of packaged products after the first quarter. It is also allotting each company two Pakistani distributors who will be licensed to handle lubes locally blended.

•

FRANCE—Franc-zone crude output is expected to reach some 400,000 b/d this year—less than predicted two years ago—but still a 72% gain over 1960.

Production shot up from 72,000 b/d in 1959 to an estimated 233,000 b/d.

The French government's Bureau de Recherches de Petrole estimates Sahara and Algeria will supply about 340,000 b/d this year, up from 177,000 b/d in 1960; metropolitan France 44,000 b/d, slightly over last year's 39,000 b/d; and Gabon and the Congo 17,000 b/d—same as in 1960.

ENI Will Give Ghana 50% of Refinery

GHANA—The Italian state oil firm, ENI, made an unusual offer to win the race for Ghana's refining rights, according to terms disclosed in Accra last week.

Ghana awarded ENI a permit to build a 24,000 b/d refinery late last year, after also considering a bid from Mobil (PW—Dec.2'60, p60).

A Ghanian refining company is being set up by ENI.

Essentially, ENI will give the Ghana government a 50% interest in the refinery in 11 years without an actual outlay of cash by Ghana.

Here's how the deal works: A portion of the refinery profits will be put into a special sinking fund. In 11 years, the fund is expected to equal half the value of the $25.2-million plant. Then Ghana may convert its title in the fund into a 50% share in the refinery.

Ghana's established marketers will have to buy all their gasoline from the new refinery, although they may supply as much as 50% of their own crude needs for processing.

The remainder of the crude will be provided by the refining firm, which must procure oil at the cheapest possible price.

Ghana's established marketers include Mobil, British Petroleum, Shell, and Texaco.

Ghana will control both the refining company's profits and the price of its finished products, under terms of the contract with ENI.

Automatic Field Welding Now Possible

A welding "process" has been successfully tested that is said to make possible for the first time the automatic welding of pipe in the field.

Welding joints of pipe at present is one of the most arduous tasks in line construction.

Because a joint is needed on an average of every 50 ft., manpower requirements are high.

Esso Research & Engineering Co., which led in developing the "process", says it enables three men to do the same number of welds that are done by 20 men working manually over the same period of time.

Cooperating with Esso on the project—phases of which have been under way for several years—were Battelle Memorial Institute, Columbus, Ohio; Air Reduction Sales Co., Union, N.J.; and Crutcher-Rolfs-Cummings Co., Houston.

The actual prototype automatic welding unit was designed and built by Air Reduction.

Esso calls the breakthrough a "process", because it is based on principles involved in rotating the welder itself on the pipe, which previously eluded application.

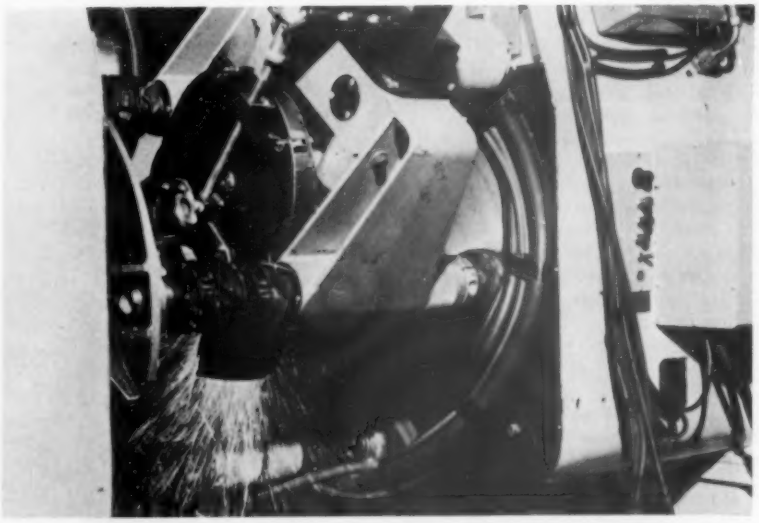
For obvious reasons, Esso and Air Reduction decline to reveal details of the method. As a spokesman says, "We have a lead, which we want to keep."

Automatic welding is not new, but it has not been feasible for field use, since the units in existence require that the pipe be rotated.

"Other automatic welders have been developed, but they cannot be used in modern pipeline construction since the pipe must be rotated to insure a perfect weld," according to M. J. Dabney, head of Esso Research's Pipe Line Research Program. "Our system eliminates that situation and makes automatic field welding a real thing. We believe this process to be the first major advance in pipe welding in the field in 25 years."

Certain details of the process are known, which may give clues as to how it works.

According to Esso, this is the procedure for using the new welder: First, pipe is strung along the ditch, and then a caterpillar tractor is used to lift the joints to be welded and to place the two-ton welder over the pipe ends. The ends of each section are held firmly together, and in line, with specially devised Crutcher-Rolfs-Cummings internal alignment clamps. The welder, in turn, is clamped to the pipe with dual prongs. Then, an air-driven cutting wheel on the welding unit slices slivers from around each pipe end in two circular sweeps. Following in the track of the cutter, a rotating arc welder makes the weld.



ARC WELDER on automatic unit completes swing around pipe in laboratory tests.

With the process, Esso says, it takes only one minute to weld two 8-in. joints.

The weld has just as much strength as any manual weld, the company asserts.

It adds that no additional treatment of the weld is necessary.

One mile of 6-in. crude line was successfully joined with the welder for Humble Pipe Line Co., in Ector County, West Texas.

The prototype unit, Esso says, is suitable for 4-in., 6-in., and 8-in. pipe.

However, the company adds, a unit can be built for use with pipe of diameters larger than 30 in.

Air Reducation will handle manufacture of the welding equipment. However, neither marketing plans—nor cost—have been set as yet, Esso says.

Big Tankers Cut Operating Costs

Substantial savings in operating costs are the chief factor behind the building of two 130,000-ton tankers by Idemitsu Kosan Kaisha Ltd., of Japan, to haul Persian Gulf crude to their refineries (PW—Jan.6'61,p39).

The Japanese oil company now uses the world's biggest tanker, the 106,500-ton Universe Apollo. It also charters the 85,000-ton Universe Admiral. Both ships are owned by National Bulk Carriers, Inc.

Idemitsu says the cost of operating the 130,000-ton vessels will be 30% cheaper than that of running a 45,000 tonner—which is today's most popular size tanker.

In addition to the larger tankers, the company also uses ships weighing approximately 45,000 tons.

The company says it can't translate the estimated percentage saving into dollar figures.

One tanker expert estimates, however, that the cost of transporting crude from the Persian Gulf to the U.S. West Coast in a 130,000-ton tanker would be under 40¢ a bbl., while the cost of moving it in a 45,000 tonner is between 60¢ and 70¢.

Since Japan is about midway between the two points, he says, the costs of taking the crude to Japan would be approximately half those

A MATTER OF CONTROL

In the Orient the cormorant industriously catches as many fish as it can. But its masters put a ring around its neck to prevent it eating what it catches. It's a matter of control. Yet you can be sure the master gives the cormorant enough fish to sustain healthy life and growth. Some for the master; some for the cormorant. Otherwise, no fish for anyone!

Under federal regulation we have, within 16 years, brought natural gas by pipeline to distributing systems serving 24 states with a population of 118 million. Given enlightened regulation in the future, we will continue to better and enlarge this public service.

TENNESSEE GAS TRANSMISSION COMPANY

FROM NATURAL GAS AND OIL...HEAT, POWER, PETROCHEMICALS THAT MEAN EVER WIDER SERVICE TO MAN

HEADQUARTERS: Houston, Texas • DIVISIONS: Tennessee Gas Pipeline Company • Tennessee Gas and Oil Company • Tennessee Oil Refining Company • Tennessee Overseas Company
SUBSIDIARIES: Midwestern Gas Transmission Company • East Tennessee Natural Gas Company • Tennessee Life Insurance Company • AFFILIATE: Petro-Tex Chemical Corporation

based on a West Coast destination.

Capacity of the 130,000-ton ships will be 900,000 bbl., while the capacity of a 45,000 tonner is 315,000 bbl.

Another striking cost figure with regard to the ships is the cost of construction itself—$14-million apiece.

Both vessels will be built in Japan.

On a per-ton basis, the cost of building the big tankers comes out to $107.69.

Cost of construction in U.S. yards averages upwards of $300 a ton, according to a spokesman for one shipowner.

Computer Measures LP-Gas Flow

Gulf Refining Co. has installed on a pipeline in West Texas what it says is "the first computer to be used for the measurement of liquefied petroleum gases."

The system, built by Computers Inc., Houston, measures the flow rate and accumulated volume of LPG passing through an orifice plate in a pipeline. The Gulf installation is located on a 3-in. line between the Coahoma (Tex.) LPG plant of Cosden Petroleum Corp. and Gulf's Coahoma LPG station, both near Big Springs.

Chief reason for using the new computer is economy, according to Computers Inc.

"The initial investment is less for this type of system than for similar installations of other types of measuring devices," a Computers Inc. engineer says. "We estimate that this particular installation cost 10% to 15% less—but on larger systems, the savings could be even more."

The company adds that use of its measuring system also cuts down on accounting work.

Among other advantages of the computer: recorder charts can be eliminated, and fewer calculations need to be eliminated, according to Billy Davis, Computers' president.

At the same time, the system is "just as accurate as other types of measuring devices," he adds.

He says that instantaneous computer accuracy is within plus or minus 1% of full-scale output, and that long-term accuracy exceeds 99.75%.

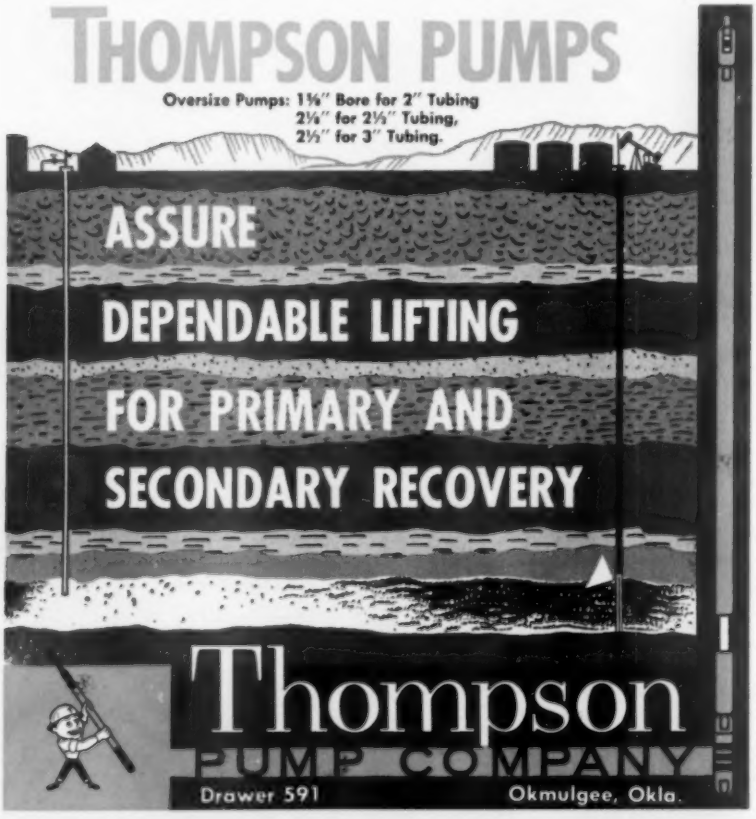
Data on specific gravity, differential pressures, and flowing temperatures are fed to the computer, which it translates into flow information.

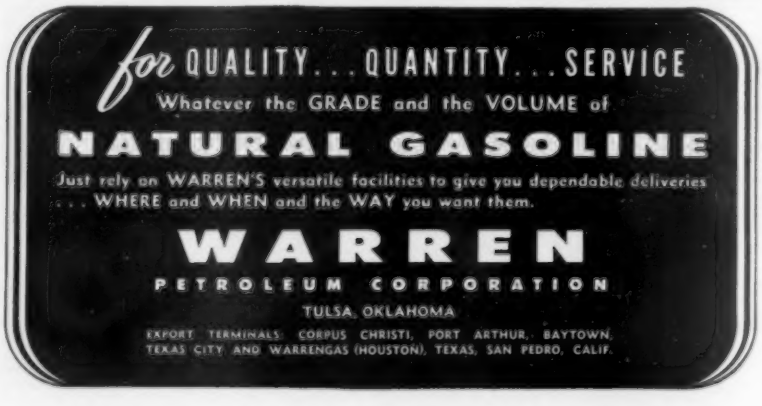
Transducers situated at strategic points measure the data and relay it to the computer by means of electrical signals. The computer then combines the data in solving the flow equation.

The instrument also computes standard orifice meter equations and corrects for specific gravity changes and temperature changes. Standard flow rates in barrels-per-unit-time are converted to total barrels pumped for any given period.

Davis explains that a "universal adapter unit" is utilized on problems involving the use of many different size orifice plates. The operator, Davis explains, is provided with a computer factor for each orifice installation. He modifies the computer for use with a specific installation by setting the proper computer factor on a dial.

"The computer flow rate is supplied to a magnetic integrator, which gives an electrical pulse for a preselected increment of volume—in barrels," Davis points out. "This pulse is then used to operate a mechanical counter to give a visual indication of accumulated volume. The volume increment represented by each pulse of the counter is determined by the parameters of the orifice installation and the operating limits of the computing equipment."

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Whatever the GRADE and the VOLUME of
NATURAL GASOLINE
Just rely on WARREN'S versatile facilities to give you dependable deliveries
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WARREN
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TULSA, OKLAHOMA
EXPORT TERMINALS: CORPUS CHRISTI, PORT ARTHUR, BAYTOWN, TEXAS CITY AND WARRENGAS (HOUSTON), TEXAS, SAN PEDRO, CALIF.

What's New
IN TRANSPORTATION

A new pipeline company—Dixie LPG Pipe Line Co.—has been formed to build the LPG pipeline from Texas to North Carolina planned by four oil companies, an informed source says (PW—Dec.16'60,p50).

The source also indicates that other companies might be involved in the project in addition to the four already identified: Phillips Petroleum Co., Warren Petroleum Corp., Tuloma Gas Products Co., and Union Texas Natural Gas Corp.

In addition, it is reported, part of the line will be 10 in., whereas prior plans had called for an 8-in. and 6-in. line.

•

Williams Brothers Co., Tulsa, will do the design and engineering work on the pump stations and terminals of the LP-gas pipeline planned by Trans-Southern Pipeline Co., a subsidiary of Transcontinental Gas Pipe Line Corp. (PW—Sep.30'60,p11).

Route and diameters of the line have been changed somewhat from the specifications in the original proposal. Trans-Southern now says the line will be 10 in. from Mont Belvieu, Tex., to Atlanta; 8 in. from Atlanta to Anderson, S.C.; and 6 in. from Anderson to Sanford, N.C.

Previously, it had been reported, the line would be 12 in. and 18 in. and extend to Danville, Va.

•

Tuloma Gas Products Co. has offered to take gas liquids on a 20-year basis from the proposed pipeline of Standard Oil Co. (Ind.), its parent company, and Pembina Pipe Line, Ltd. (PW—Jan.27'67,p6).

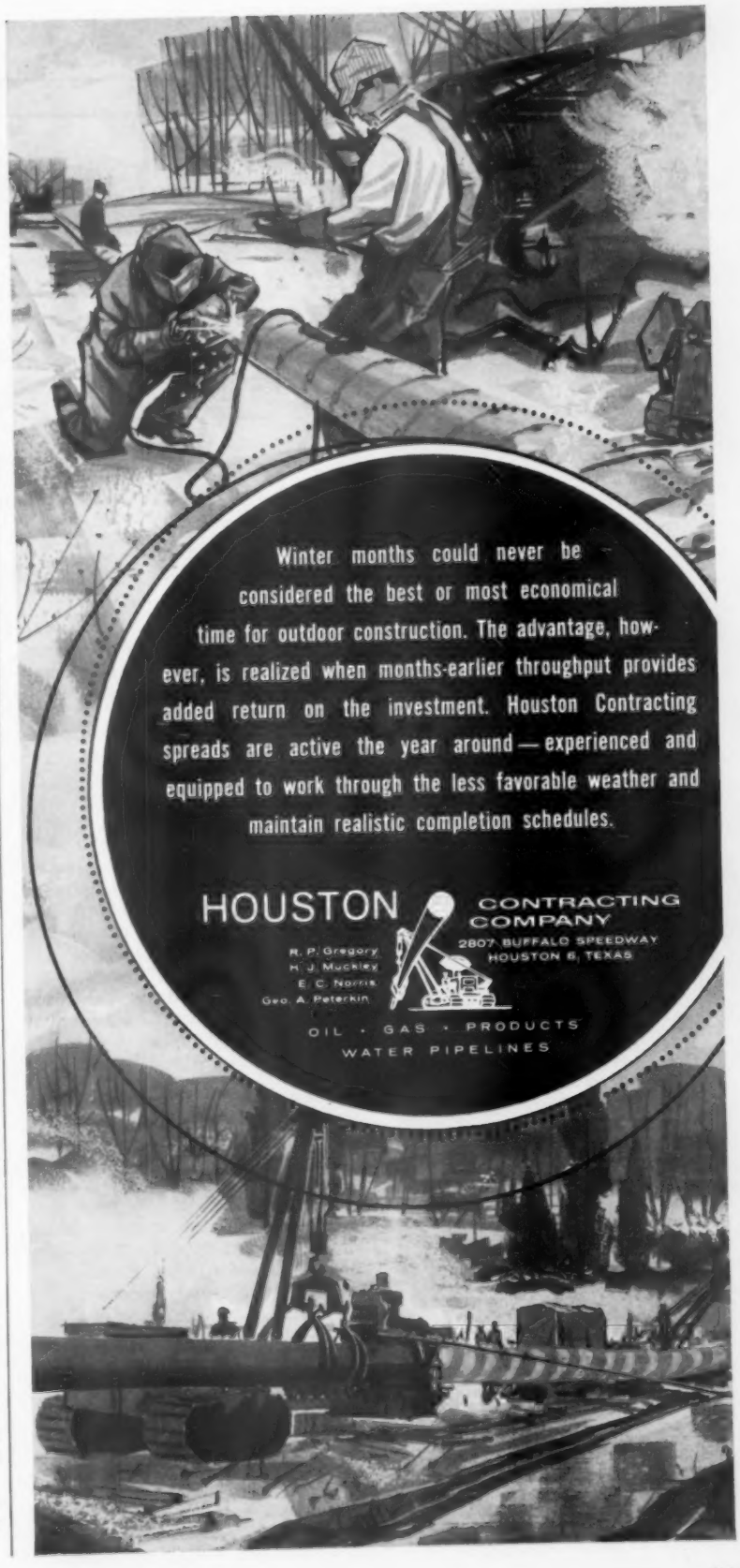
Prior to construction of the $150-million line from Alberta to Chicago, it is reported, Tuloma would take the LPG under interim agreements.

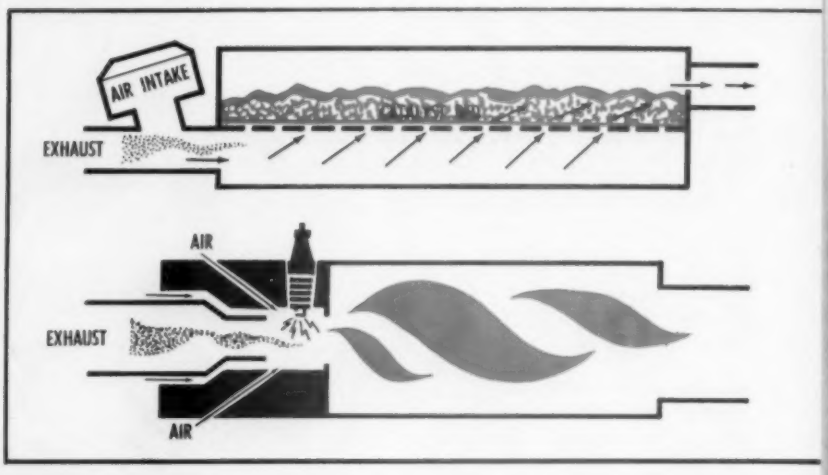
•

N.Y. State Natural Gas Corp. has asked the Federal Power Commission for authority to store gas for Transcontinental Gas Pipe Line Corp.

Under the plan, Transco would deliver gas this summer to N.Y. Natural, which would store it in pools along its system. Next winter, N.Y. Natural would redeliver the gas.

Storage capacity available to Transco after the first year of the arrangement would be 7.5-billion cu. ft.


Winter months could never be considered the best or most economical time for outdoor construction. The advantage, however, is realized when months-earlier throughput provides added return on the investment. Houston Contracting spreads are active the year around — experienced and equipped to work through the less favorable weather and maintain realistic completion schedules.
HOUSTON
CONTRACTING COMPANY
2807 BUFFALO SPEEDWAY
HOUSTON 6, TEXAS
R. P. Gregory
H. J. Muckley
E. C. Norris
Geo. A. Peterkin
OIL • GAS • PRODUCTS
WATER PIPELINES



California Readies Test of

California is accelerating its search for an auto accessory that will destroy smog-forming exhaust fumes. But it's unlikely that one will be approved within a year.

Actually the state needs two approved devices before it can force motorists to comply with the law requiring them to install a smog device on the tailpipes of their cars.

That law was passed last April (PW —Apr.15'60,p14) and it represents a potential $1-billion in business to service station dealers who may find themselves called upon to sell and install the smog-killing mufflers.

Although the market for these accessories is confined to California, there is good reason to believe that other states will follow California's example, if it is successful.

The search for the accessory has galvanized scores of manufacturers and countless independent inventors into action.

Already 70 companies and individuals have applied for the forms that must be completed before a device can be submitted to the Motor Vehicle Pollution Control Board.

Actually, 25 prototype devices must by submitted by each applicant.

At the moment, state officials are busy establishing criteria to test the tailpipe accessories.

The control board wants well-defined steps leading to approval. The first would be to insure that the devices meet the standards set by the State Dept. of Health.

Other hurdles would include desired lifespan, ease of inspection, and economical cost. (No one wants an accessory that costs so much it would arouse the ill-will of motorists.)

Manufacturers who submit their accessories for approval must first show that they're likely to pass the board's tests.

Many of the companies that have applied for testing are familiar to oil marketers: For example, the list includes E. I. du Pont de Nemours & Co., Ethyl Corp., Union Carbide Development Co., and Universal Oil Products Co.

Most of the accessories being developed promise to cut down smog-forming hydrocarbons by either of two methods: afterburning or catalytic destruction.

Both are designed to catch unburned hydrocarbons before they are lost in the air. An afterburner would ignite these chemicals as they pass through an exhaust muffler. This approach has shown promise in large gasoline-powered trucks and buses, but is still in the experimental stage for automobile use.

The second approach would draw the unburned hydrocarbons over a catalyst bed and destroy them. The criticism here is that the lead compounds in gasoline may eventually smother the catalyst, killing its effectiveness.

Last month, Los Angeles—where

3-MILLION smog-making cars in Los Angeles: That's more than in all of Asia and South America combined.

What's New / IN MARKETING

Control By Catalyst

Hydrocarbons mixed with air are destroyed by passing through catalyst bed.

Control By Ignition

Unburned hydrocarbons here mix with air and are ignited by spark or flame.

Smog Killers

the smog problem is most severe—received a pollution alert touched off not by hydrocarbons but by excess nitrogen oxides in the air.

The alert frightened the city and caused county supervisors to appeal to the governor for standards that will control this new menace.

When the excitement subsided, Los Angeles residents learned that the nitrogen oxide alert did not represent a danger to public health. But there was no assurance that, in the long run, mounting concentrations of these chemicals would not create a serious health problem.

The unnerving part about nitrogen oxides, county officials feel, is that afterburners (including the catalytic type) placed in car mufflers would add—not reduce—their concentration in the air.

Fortunately, there already may be an answer to the oxide problem, county supervisors say. They have turned up a control device (costing only $2 to install) that is said to cut down an estimated 80% to 90% of the chemical.

Recently, Los Angeles county officials took another step toward reducing exhaust smog: They required installation of a blowby control on all county vehicles.

Blowby fumes are emitted from crankcases underneath the automobile. New cars turn these fumes back into the engine for reburning. But old vehicles require a control device (installation cost: $5 to $15) to do the job.

Regrets Amid the Cheers

This may be one of the best heating oil seasons that oil marketers ever have had. But there is one company—Delhi-Taylor Oil Corp.—that's "been crying about it for weeks."

The reason is not hard to find: Delhi-Taylor had planned to open at least one of its four terminals in New York State by Nov. 1, marking its first entrance into the Northeast (PW —Sep.2'60,p36).

But delays buried under mounting snows and freezing temperatures the company's chance to get into the booming market.

Next week, the company will finally open three of its four terminals (in Rochester, Syracuse, and Utica; the fourth—in Binghamton—will open in the spring).

There may be opportunities to fill spot orders, the company says, but Delhi-Taylor's real entrance into the Northeast heating market will have to wait until next fall.

Meanwhile, the company is looking forward to the coming gasoline season, when it will make available approximately 650,000 bbl. of new terminal capacity for sales to private branders in New York State.

•

Utility Foots Bill

All it takes to convert to gas in Washington State is $1.95 a month. That's what Washington Natural Gas Co. has started telling oil-heat consumers.

And the utility is prepared to prove it.

All home owners have to do is give the company $1.95 a month (over what their gas bill would be) and their furnaces will be converted to gas.

Of course, privately, Washington Natural admits that it costs much more to install a gas burner. But it will offer any contractor $135 to do the converting, plus $40 for any jobs he initiates.

The home owners who converted can eventually buy their burners.

The plan (pioneered by New England gas utilities) is reminiscent of a subsidy plan launched by Northwestern oil marketers last season: The marketers gave new-home builders $100 for every home they equipped for oil heat.

Not to be left out in the cold. Puget Sound Power & Light Co. has started offering builders $25 in advertising allowances when they erect electrically heated "Gold Medallion Homes."

•

The dealers of the future may prepare for their jobs with a dose of simulated experience given to them during a new kind of business game. One company has already tested its own such game.

As soon as it is fully approved, the company will tie in 35 training centers to one centrally located computer. The dealers will make one "move" a week, with the computer telling them how well their moves stack up against the company's experience.

•

Dow Chemical Co. now is telling its motorists they can leave Dowgard (its new coolant) in their car radiators for a second year.

Dowgard was first announced last year, and up to now motorists were told to drain it every spring. Now they can wait until the following spring.

Dow felt for some time that the longer period might be possible, says Robert Hansen, head of Dow's auto chemicals lab.

Now, apparently, it is convinced of it. After all, says Hansen, Dowgard removes the major source of cooling difficulty: impure tap water. No water is to be mixed with Dowgard. It contains its own "specially treated" water.

Early this week, Dow announced plans to market a complete "family" of auto products, all branded Dowgard. First offspring: a conventional antifreeze for next season.

•

Dealers in Riverton, Wyo., breathed a sigh of relief last week when pump prices jumped 8½¢ to 37½¢ a gal. (for regular gasoline). It signaled the end of a ten-month price war.

The first break in the devastating war came when Frontier Refining Co. returned to the prewar posting of 36.9¢ a gal. (Prevailing price in Riverton since March had been 29¢.)

Shortly afterward the general price level shifted to 37½¢. Premium gasoline moved to 41½¢.

HOWARD S. McCRAY has been elected president of Texas Pipe Line Co., Houston, succeeding **John W. Emison,** who will retire in April. McCray, assistant to the president of Texaco Inc., the pipeline company's parent, since 1959, joined Texaco in 1926 as an engineer at its Port Arthur (Tex.) refinery. In 1958, McCray was elected chairman and chief executive officer of Texas-Zinc Minerals Corp., a uranium company jointly owned by Texaco and New Jersey Zinc Co.

H. S. McCray

A. B. Hersberger

DR. ARTHUR B. HERSBERGER has been promoted to general manager of marketing for Atlantic Refining Co., Philadelphia. He will report to **Dwight T. Colley,** vice-president, who will retire on May 1. Hersberger, who has been with Atlantic since 1936, was most recently general manager of foreign marketing and manager of special sales. At the same time, **Milton G. Davis** becomes general manager of Atlantic's domestic marketing, reporting to Hersberger. Davis joined the company in 1937, and has been regional marketing manager since 1958.

THOMAS A. DIFFER, JOSEPH M. JEROME, and **E. L. BEAMON** are managers of three new marketing districts created by the reorganization of Tidewater Oil Co.'s marketing department in its 14-state eastern division. Differ will be New England manager, at Brookline, Mass.; Jerome becomes New York marketing manager, in New York City, responsible for New York state and northern New Jersey; Beamon will be Middle Atlantic manager, in Philadelphia, responsible for South Jersey, Pennsylvania, Delaware, Maryland, Virginia, and North Carolina. The three district managers will report to **Donald Y. McCoy,** Tidewater's eastern division marketing manager. Area managers for New England, appointed as a part of the reorganization, are: **Francis X. Downey,** northern area: **E. J. Preston,** central area: and **Rolfe E. Lundgren,** southern area. Area managers in the New York district are: **Walter M. Czesnowski,** metropolitan; **Albert B. Baxter,** New Jersey; **W. W. Kerrigan,** Hudson River; and **Harry P. Hyatt,** west-central New York. **Thomas M. Hennessey** is the central area manager in the Middle Atlantic district, **Harry S. Pettit,** is the northern area manager in that district; and **Frank A. Guerin,** is the southern area manager. Each area manager will be responsible for the coordination and functioning of all marketing activities in his area, and will have a number of field sales managers reporting to him.

F. R. SCHMIEDER, formerly general superintendent in Shell Oil Co.'s area production department at Los Angeles, is the company's new production manager of the San Joaquin division, with offices at Bakersfield, Calif. He succeeds **R. J. Woodward,** who has accepted a foreign assignment with the Shell group following a special assignment in New York.

J. C. HEGGBLOM, formerly general manager for Gulf Oil Co. of Libya, transfers to Nigeria, as general manager of Gulf Oil Corp.'s new subsidiary, Nigerian Gulf Oil Co. **N. C. Simpson,** formerly a vice-president for the parent company in Pittsburgh, will succeed Heggblom in Libya.

MAURICE S. SCHILLER has been elected president and a director of Speedway Petroleum Corp., Detroit, Mich. He has been Speedway's executive vice-president since 1958, and became a vice-president of Aurora Gasoline Co., Speedway's parent, in 1954, a position he will continue to hold. Schiller succeeds **C. William Sucher,** who recently resigned to devote his time to other activities.

L. G. RODGERS has been appointed vice-president of Sunray Chemical Co., Tulsa, petrochemicals subsidiary of Sunray Mid-Continent Oil Co. Rodgers was most recently manager of engineering for the parent company, and has also served as general superintendent for its gas-gasoline department, manager of the technical services department, and general manager of the gas division. He spent some time with DX Sunray Oil Co., another subsidiary, as administrative assistant to the vice-president of manufacturing.

L. G. Rodgers G. B. Carpenter

DR. GILBERT B. CARPENTER has joined Mobil Chemical Co. as technical advisor. He was formerly director of development for Air Reduction Chemical Co., in New York. Carpenter, whose headquarters will be with Mobil Oil Nederland, N.V., in Rotterdam, Holland, will gather information on new products and processes overseas. He will advise Mobil Chemical on the expansion of its chemical production and research activities in the U.S. and abroad.

ROBERT F. MATTHEWS, geologist for Continental Oil Co. in Roswell, N.M., has been elected president of the Southwestern Federation of Geological Societies, which is made up of geological groups in Dallas, Ft. Worth, Wichita Falls, Abilene, Midland, and Lubbock, Tex., and Roswell, N.M. Matthews succeeds **W. N. Tindell,** an Abilene consultant. **Charles Forney,** Champlin Oil & Refining Co., Ft. Worth, is the new vice-president of the federation; **Thomas Hambleton,** Texaco Inc., Midland, is secretary; **E. A. Hanson,** Roswell consultant, is treasurer.

B. R. Dorsey

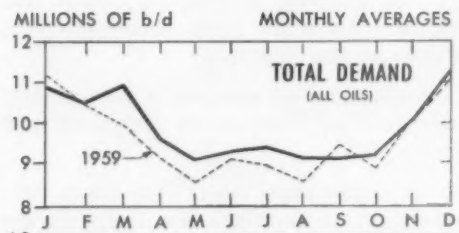
J. E. Bounds

I. G. Davis

I. G. DAVIS and **J. E. BOUNDS** are new executive vice-presidents of Gulf Oil Corp., and **B. R. DORSEY** is its new senior vice-president. Davis, formerly a senior vice-president, is a member of the company's executive section and will have general corporate duties. Bounds, previously administrative vice-president and coordinator, financial department, will be a new member of the executive section and will have general corporate duties. Dorsey will be primarily responsible for the general areas of refining, petrochemicals, product supply, and product transportation on a world-wide basis. He was formerly administrative vice-president and coordinator, manufacturing department. All three men will continue to be located at Gulf's general offices in Pittsburgh.

PETROLEUM WEEK'S

Fingertip Figures



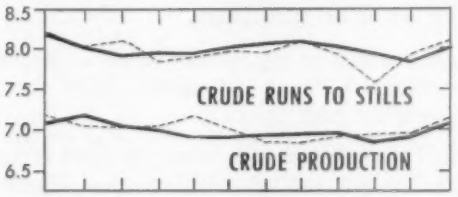
Figures for period ended Jan. 27, except as noted

TOTAL DEMAND

Latest 4-week average	11.226
Year ago	10.841

DISTILLATE DEMAND

Latest 4-week average	3.682
Year ago	3.311

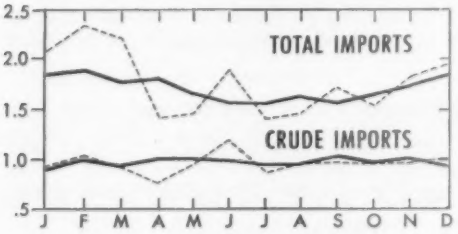


RUNS TO STILLS

Latest week	8.401
Previous week	8.357
Year ago	8.149

CRUDE PRODUCTION

Latest week	7.198
Previous week	7.216
Year ago	7.136

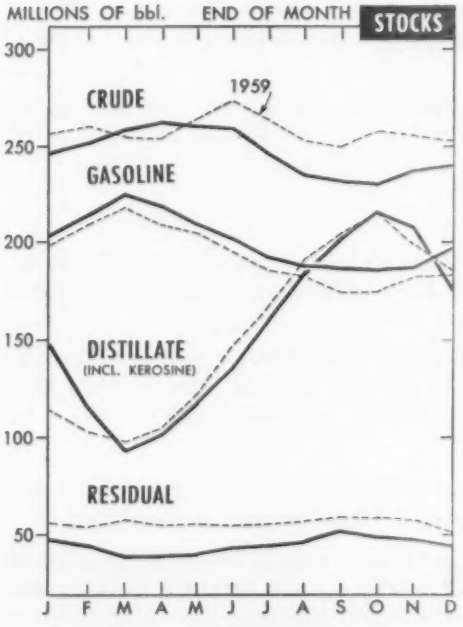


TOTAL IMPORTS

Latest week	2.254
Previous week	1.745
Year ago	2.179

CRUDE IMPORTS

Latest week	1.134
Previous week	.942
Year ago	1.059



CRUDE STOCKS

Week-ended Jan. 21	236.4
Previous week	239.2
Year ago	248.7

GASOLINE

Latest week	210.0
Previous week	204.8
Year ago	203.2

DISTILLATES

Latest week	143.9
Previous week	152.1
Year ago	151.5

RESIDUAL

Latest week	44.4
Previous week	45.2
Year ago	47.9

Demand for the so-called minor products will continue to pace total demand over the next five years.

Included in this category are wax, coke, asphalt, road oil, still gas, and liquefied petroleum gases.

Demand for commercial and military jet fuel, which has reached major product proportions, is not included.

Between now and 1966 the minor products—which account for roughly 15% of total demand—will grow at an annual rate double that of total demand.

While total demand will increase an estimated 2.8% yearly over the next five years, it is anticipated that products in the "all other" category will grow at a rate of 5.7% annually.

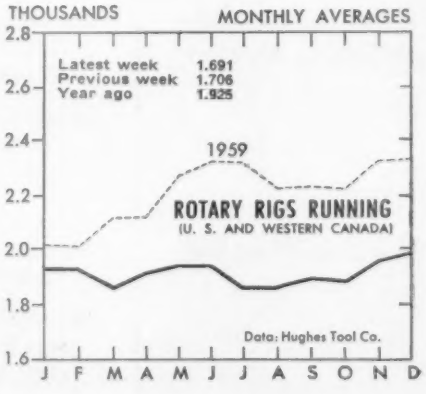
But not all of this minor product growth will go to bolster demand for crude. LPG, the most important in this category, is a potential threat to growth in demand for crude.

Close to half of all production of LPG goes for commercial and domestic heating and cooking. One-third is used in petrochemical manufacturing.

Therefore, the growth in demand for LPG will slow the rate of growth for crude.

As natural gas production increases, LPG output will step accordingly, and be a hot competitor in the energy market.

Between now and 1966, LPG demand is expected to rise by 360,000 b/d.



The Market Trend

Nobody Thinks the Same About Russian Oil

Country by country, everybody looks at the rising tide of Russian oil exports through different eyes. They're cheap and convenient to the Italians. They're politically too hot for some of the South Americans. And they could be economically dangerous to the Japanese.

Needless to say, all major international oil companies take a very dim view of Russian oil. The price ratio of Western oil compared with Eastern oil is something like 100:75.

The kindest view of Russian oil comes from Italy. This year, Italy will get about 25% of its requirements from the Black Sea. Italy is a net buyer in world crude markets. It wants a low oil price, plus a market for home factory products. Russia will oblige with both.

Toughest attitudes are seen in the U.S. and in Uruguay. Remember the uproar a few years back when a cargo of Black Sea fuel oil landed in New York harbor? In the same vein, Uruguay—after a little soul-searching—has come up with a no-Russia policy on oil imports.

Russian oil has made enormous inroads in the Swedish market in the past few years. In 1957, Russia supplied 5.7% of the market. Last year, Iron Curtain oil enjoyed 17% of total oil sales.

Professedly neutral nations feel that they should take a little oil from Russia just to show the world they're not prejudiced. This year, Egypt will split its crude buying between Russia and Caltex. Switzerland wouldn't mind using some Russian crude in its planned refinery, but it doesn't want too much.

The Japanese wouldn't want to depend on Russia for more than 10% of their supplies. The rate now is about 4.5%. But the Japanese still remember being cut off by the Russians in the 1930s. The particular attraction right now is the low-sulfur quality of some of the Black Sea crudes and fuel oil.

The pro-Arab sentiment is reflected in Lebanon. The opinion there is that every barrel of fuel oil bought from Russia shuts in two barrels of Arab-nation crude.

And Germany adopts the attitude of an importer and consumer nation. Let the Russians have some of the business, say the Germans, for it will keep the Western oil companies on their toes.

No. 2 Fuel Oil—A Strong Market:

The weather continues to be the big news for the home heating oil market. Gulf Coast prices for No. 2 have risen to 9.25¢ a gal., and very little spot oil can be lined up for February lifting.

In the East, suppliers are of two minds about another price advance. For the moment, tight supply would point to another hike. For the long-term, however, higher oil prices tend to sell natural gas.

Morania Wins Bid:

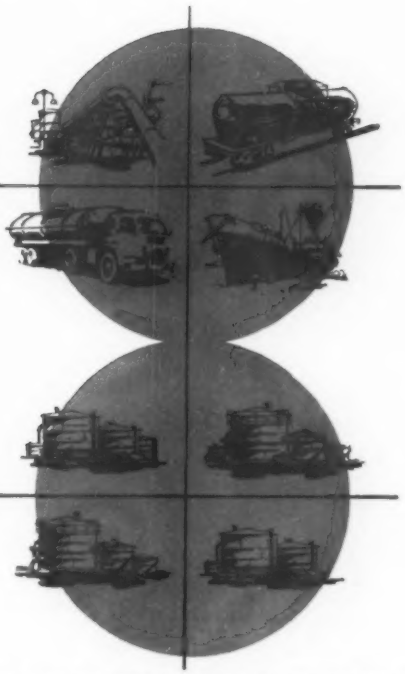
Morania Oil Co. submitted the apparent low bid last week to supply New York City's Transit Authority with 16-million gal. of diesel fuel.

Morania's bid was 10.39¢; delivery by tank wagon. The only other bidder was Humble Oil with a price of 10.41¢. Transit currently is being supplied at 9.8¢.

SHIP 'EM

or

STORE 'EM



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The Market Place AROUND THE WORLD

Prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service and National Petroleum News, McGraw-Hill Publications

All prices as of January 30

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal. except dollars per bbl. where $ is shown)

Western Hemisphere

U.S. Gulf Coast, cargoes
- Gasoline, 98 oct prem....12.25-13.25
- Gasoline, 92 oct reg....11.25-11.5
- **Kerosine....10↑-10.25**
- **Heating oil, No. 2....9.25↑-9.5**
- **Gas oil, 48-52, d.i....9.5↑-9.75↑**
- Fuel oil, bunker "C"....$2.30-2.40

Caribbean, cargoes
- Avgas, Grade 100/130....14.75
- **Gasoline, 93 oct research prem....10.875↓-11**
- **Gasoline, 87 oct research reg....9.5↓-9.875**
- **Gasoline, 80 oct research....8.75↓-9.125**
- **Gasoline, 70-72 oct motor method....8.625↓-9**
- **Kerosine....9.75↑-9.875↑**
- **Heating oil, No. 2....8.625↑**
- **Gas oil, 48-52 d.i....8.875↑**
- Fuel oil, bunker "C"....$2.00

New York Harbor, barges
- Kerosine....10.9-11.15
- Heating oil, No. 2....9.9-10.15
- Fuel oil, No. 6....$2.62

Okla.-Group 3, northern shpt., bulk
- Gasoline, 91 oct reg....12.5-13.25
- Kerosine....11-11.125
- Heating oil, No. 2....9.5-9.75
- Fuel oil, No. 6....$1.80-1.90

Chicago, bulk
- Gasoline, 92 oct reg....12.625
- Heating oil, No. 2....9.75-11.35
- Fuel oil, No. 6 high sulfur....7.65

Los Angeles, rack
- Gasoline, 88 oct reg....11.3-12.65
- Diesel fuel, PS 200....7.75-11.25
- Light fuel, PS 300....$2.90
- **Heavy fuel, PS 400....$2.10↑-2.45**

Natural Gasoline, Grade 26-70
- FOB Group 3....4.5
- FOB Breckenridge, Tex....4

LP-Gas
- Propane, Oklahoma (Group 3)....4.5-5
- Propane, Baton Rouge....5.875

Pennsylvania Lubes
- Bright stock, 25 p.t....26
- 200 vis. neutral, 25 p.t....28

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i....26-27
- Neutral, solvent, 200-210 vis....23-24

Gulf Coast Lubes
- Bright stock, solvent, 95 v.i....26-27
- Neutral, solvent, 200 vis....23-24

Eastern Hemisphere

Singapore (Pulau Bukom) cargoes
- Avgas, grade 100/130....15.5
- Gasoline, 79 oct research....9
- Kerosine....9.625
- Gas oil, 48 d.i. minimum....9

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, (Okla.-Kan.), 36.0-36.9....$2.69-2.97
- North Dakota, 36.0-36.9....2.47-2.87
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9....3.50
  - Gulf Coast, Upper & Lower, 26.0-26.9....2.92-3.22
  - West Texas, sweet, 36.0-36.9....3.00
  - West Texas, N.M., inter., 36.0-36.9....2.93
  - West Texas, N.M., sour, 32.0-32.9....2.71
  - East Texas, flat....3.05-3.25
  - Mirando, 28.0-28.9....2.96-3.31
- Illinois Basin, flat....3.00
- Pennsylvania Grade, Bradford dist., flat....4.80
- California, Signal Hill, 21.0-21.9....2.33†
- North Louisiana-Arkansas, 36.0-36.9....2.72-3.02
- Wyoming, sweet, 36.0-36.9....2.85-2.90
- Wyoming, sour, 32.0-32.9....2.63-2.71

Canada (flat prices, at the well)
- Pembina (Alta.)....$2.38
- Leduc-Woodbend (Alta.)....2.53
- Redwater (Alta.)....2.42
- Steelman A (Sask.)....2.425
- Virden (Man.)....2.285

Venezuela (Cargoes, FOB lifting port designated)
- San Joaquin, 41.0-41.9, Puerto la Cruz....$3.10
- Oficina, 35.0-35.9, Puerto la Cruz....2.80
- Tia Juana, Medium, 26.0-26.9, Amuay....2.30
- Bachaquero, flat, La Salina....1.85
- Lagomar, 31-31.9, Cardon....2.55
- Lagunillas Heavy, flat, La Salina....2.07

†Differential per deg. of grav. varies

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabia, 34.0-34.9, Ras Tanura....$1.80
- Safaniya, 27.0-27.9, Ras Tanura....1.47
- Iran, 34.0-34.9, Bandar Mashur....1.78
- Iran, 34.0-34.9, Abadan....1.73
- Iraq, 35.0-35.9, Fao....1.72
- Kuwait, 31.0-31.9, Mina-al-Ahmadi....1.59
- Qatar, 41.0-41.9, Umm Said....1.95
- N. Zone, Burghan, 23.5-24.4, Mina Saud....1.48
- N. Zone, Ratawi, 23.5-24.4, Mina Saud....1.41
- N. Zone, Eocene, 16.5-17.4, Mina Saud....1.28

Middle East, Eastern Mediterranean
- Arabia, 34.0-34.9, Sidon....$2.17
- Iraq, 36.0-36.9, Tripoli, Banias....2.21

North Africa, Phillipeville, Algeria
- Hassi Messaoud, 48 and above....Withdrawn

KEY TANKER RATES

(Last paid, per long ton, single voyage)

U.S. Gulf-New York, clean....(USMC+40%) $3.99
U.S. Gulf-New York, dirty....(USMC+35%) $3.85
NWI-USNH, dirty....(USMC—50%) $1.38↓
NWI-UK/Cont., dirty....(Scale—35%) 21/3*
Persian Gulf-UK/Cont., dirty....(Scale —50%) 24/—*
Persian Gulf-USNH, dirty (USMC—67½%) $4.13↓

**Sterling*

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L. Guill

E. N. Thomas

LEE GUILL has been appointed vice-president and sales manager for Chiksan Co., Brea, Calif., and **E. NELMES THOMAS** has been appointed vice-president of Chiksan International, and will continue as manager of sales development for the California organization. At the same time, **Gus M. Bagnard,** Chiksan's chief engineer, was also appointed vice-president. Guill joined the company in 1949, and was most recently eastern regional sales manager. He will be located at the company's headquarters. Thomas joined Chiksan in 1952 as manager of sales development at Brea, where he will continue to be located. Bagnard has been with Chiksan since 1944, when he established its test facilities at Brea. He has been chief engineer for the past eight years.

A. J. HEATH is in charge of operations at a new rental and service location at Wooster, Ohio, recently opened by the Baash-Ross Division of Joy Mfg. Co. **Lester Davis,** has also transferred to the new location as warehouseman. Both men were located at the division's Indiana (Pa.) office, which has been closed.

HOWARD M. ITZ has been promoted to manager of operations for Aquatrol, Inc., Houston manufacturer of corrosion inhibitors and industrial water treatment chemicals. He was formerly resident manager for the company. In his new position, Itz succeeds **John P. Tognetty,** who has resigned as vice-president of Aquatrol to enter the field of psychological consulting. Itz, a chemical engineer, has also been with Celanese Corp. of America and Wyatt C. Hendrick Engineering Corp.

PAUL E. MADELEY has been elected president of Electrodynamic Instrument Corp., Houston, subsidiary of Reed Roller Bit Co. Madeley was most recently executive vice-president and engineering consultant of the electronic company, which he helped found in 1956. He has also been associated with Southwestern Industrial Electronics, one of the Dresser Industries, where he worked in seismic exploration equipment design and research.

R. C. TWOMBLY is manager of Westinghouse Electric Corp.'s new small steam and gas turbine department in its steam division, with offices in Pittsburgh. The new department replaces the small steam turbine department and the industrial gas turbine department. Twombly was formerly manager of the small steam turbine department and acting manager of the industrial gas turbine department. **J. D. Moise,** who has been sales manager for the steam division's marine products department, will be the assistant to Twombly.

DOYLE WALLER has been promoted to coordinator of field training, sales and engineering, in the drilling mud department of Magnet Cove Barium Corp., Houston, one of the Dresser Industries. **Charles Henderson** succeeds Waller as supervisor of the engineering training laboratory in Magcobar's technical department. Henderson has been assistant supervisor of the engineering training laboratory for the past two years. In his new position, Waller will assist in preparing technical and market data for the company's sales and

W. M. Broxham

H. H. Hemenway

L. G. Lancaster

WILLARD M. BROXHAM, vice-president for eastern operations for Graver Tank & Mfg. Co., East Chicago, Ind., a division of Union Tank Car Co., assumes new duties as vice-president and Pacific Coast sales manager, and **HENRY H. HEMENWAY** and **LIONEL G. LANCASTER** are two new Graver vice-presidents. Hemenway, formerly Graver's director of research and development, is now vice-president for research and engineering. Before joining Graver in 1959, he was associated with Foster-Wheeler Corp. Lancaster joined Graver as general manager of field erection in 1959. He is now vice-president of construction.

service engineers serving oilwell drilling operators. He will also work with regional managers in presenting the prepared information to sales and service groups. Waller, who joined Magcobar in 1955, served as a sales and service engineer before transferring to the engineering training lab. He served as assistant prior to being named supervisor of the lab in 1959.

B. E. OLSEN has been appointed assistant manager of sheet and strip sales for Kaiser Steel Corp., with headquarters at the company's sales offices at Oakland, Calif. He succeeds **W. S. Barnum**, who was recently named assistant manager of tubular sales in the Oakland general sales section. Olsen joined Kaiser's sales division in 1952. He was assistant export sales manager until 1959 when he became a sales representative with central district sales at Oakland.

WILLIAM H. CLARK has been appointed district sales manager for Fibercast Co., with offices in Madison, Wis. He will be in charge of Fibercast's district three, which includes Indiana, Michigan, Illinois, Missouri, Iowa, Minnesota, Wisconsin, and the western half of Kentucky. Fibercast, manufacturer of reinforced epoxy resin pipe and fittings, is operated by Continental-Emsco Co., Dallas. Both companies are divisions of Youngstown Sheet & Tube Co.

TURNER ARMSTRONG has been named vice-president of Halliburton Co., in charge of the Welex division at Houston. The division was Welex, Inc., before its recent merger with its parent, Halliburton Co. He joined the Halliburton organization in 1940, was vice-president of the Welex subsidiary before the merger.

T. Armstrong

R. M. Erskine

ROBERT M. ERSKINE has been appointed to the newly created position of assistant general manager sales, nontubular, for Continental-Emsco Co., Dallas. Erskine, who has been with C-E since 1953, was most recently manager of subsurface equipment sales. **Jim Ritchey**, formerly D-B special representative for C-E, succeeds Erskine in subsurface sales.

JOE R. THOMPSON has been named manager of a new division of American Iron & Machine Works, Inc., with headquarters at Midland, Tex. The division consolidates the company's Midland and Dallas-Ft.Worth districts. He has been district manager at Midland for the past two years.

J. P. Walker C. G. Wells A. W. Francis, Jr. J. D. Lowd

ALEX W. FRANCIS, JR., has been elected president of National Tank Co., Tulsa, succeeding **JAY P. WALKER**, who continues as chairman. Francis was formerly vice-president for sales and a director of National Tank. **C. G. WELLS** has been elected vice-chairman, and **JUDSON D. LOWD** succeeds him as National Tank's executive vice-president. Lowd has been vice-president, a director, and manager of the company's export division since 1958.

THE ELECTRONIC DATA PROCESSING DIVISION of Radio Corp. of America, has opened a sales office in Denver, Colo. The new office will serve customers in Colorado, Utah, and South Dakota. It will be primarily concerned with the sale and leasing of the RCA 301, 501 and 601 transistorized electronic data processing systems.

J. W. ANDERSON is the new manager of the power transmission sales department of Hewitt-Robins Inc., with offices in Stamford, Conn. He will be responsible for sales of all the company's power transmission products, such as chains, speed reducers, couplings, pulleys, and related equipment. Anderson has been in charge of sales for the company's Union Chain Division at Sandusky Ohio.

O. A. BRIGHTWELL, JR., has been appointed manager of national sales and engineering for Oildox Services, a new section of Cardox (CO_2), division of Chemetron Corp., with offices in Ft. Worth. Oildox will supply Cardox carbon dioxide storage and injection equipment to oil producers engaged in secondary waterflood recovery programs, under rental, lease, or contract sale plan.

WENDELL ROBINSON has been appointed to the newly created position of manager of advertising and public relations for Consolidated Systems Corp., Pasadena, Calif., an associate company of Allis-Chalmers Mfg. Co., Bell & Howell Co., and Consolidated Electrodynamics Corp. Robinson was formerly manager of technical publications for the Electro-Data division of Burroughs Corp.

JOHN F. PITTAS has joined the legal staff of Universal Oil Products Co., Des Plaines, Ill. He was formerly associated with the Securities & Exchange Commission in Washington, D.C., as an attorney advisor in the company's division of corporate finance.

CLIFFORD A. FAUST has been named to the newly created position of administrative manager of the advertising and sales promotion department of Consolidated Electrodynamics Corp., Pasadena, Calif. a subsidiary of Bell & Howell Co. He will be responsible for methods and procedures, cost accounting and records, advertising effectiveness studies, market research liaison, and personnel policies for the department. Faust joined CEC in 1956 as staff manager of technical services, and became director of technical services the following year. In 1958 he became assistant to the marketing vice-president and marketing administrator in 1960.

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Court Ruling Helps Coal Campaign

LAST WEEK'S SUPREME COURT DECISION in the Transco case is, in effect, a heady "victory" in the coal industry in its relentless campaign to have end-use controls imposed on fuels.

In other words, coal won by court decree the very thing it has been unable to obtain by legislation. Or, at least, a substantial hunk of it. The line is thin, but nevertheless it is there.

It is true, of course, that the Federal Power Commission ruling which the Supreme Court upheld was predicated more on what could happen to consumer prices in the long run than on the end-use factor. But the end results are the same. Transcontinental Gas Pipe Line Corp. can't haul Consolidated Edison Co.'s gas to New York if it's to be used as a boiler fuel and displace a "more abundant fuel" . . . in other words, coal.

THE COAL PEOPLE, naturally, were elated with the high court's decision. And why shouldn't they be? The decision not only closed a back door for them, but put them in a better position psychologically to close the front door too, via their persistent drive to have Congress establish a national energy policy.

Despite coal's protestations that it is not seeking end-use controls, there can be no doubt that this is the one and only objective. All you have to do is read between the lines, and the message is there, plain and simple.

Much will depend, in the near future, on how FPC interprets the Supreme Court ruling, and how it applies its new-found authority in cases that are pending or may be filed later. It would be most unfortunate should the end-use philosophy get out of hand, and permeate FPC thinking and opinions.

END-USE CONTROLS would help the coal industry, which has been ailing for a long time. But they wouldn't help the American economy, nor the consumer. Carried to the extremes, end-use controls would destroy the basic American concept of a free, competitive market. The right of consumers to pick and choose on an open market would be forfeited, and consumers would be told to take what is given, not what they desire or the pocketbook would prefer.

It is a foregone conclusion that an energy study will be made by the Kennedy Administration—either on a Cabinet level, or by a special congressional committee this year or next. Petroleum has a mighty big stake in the outcome—so let's make sure that its voice is heard loud, long, and clear. There is no other course.

TESTING

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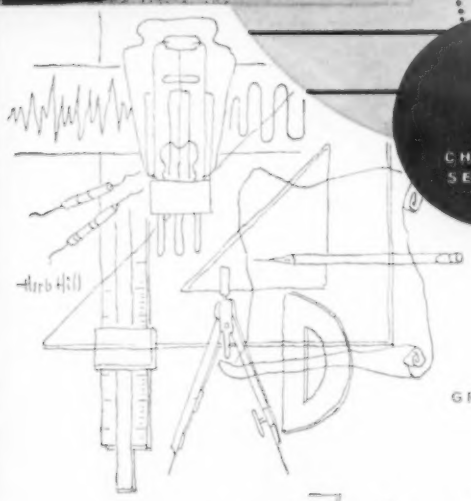

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Halliburton's dedication to complete service to the oil industry has resulted in the accomplishment of leadership in the four major areas of oil well services – testing, fracturing, cementing, and chemical services. Each of these departments within the Halliburton organization is supported by its own research and development teams, manufacturing units, and field service experts. Each has been responsible for bringing revolutionary developments to its own segment of the industry, making possible the evolvement to today's modern drilling and producing practices.

THE WORLD OF HALLIBURTON

Recently another entity was added to provide other industries with special products and services that, where applicable, will bring new technological advancements for the benefit of diversified interests.

The world of Halliburton has as its axis—service. It will continue to devote its manpower and energies to the service of the oil and gas industry as its main purpose while always being alert to the requirements of others.

Halliburton

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Abrasijet...
a profitable way to complete a well

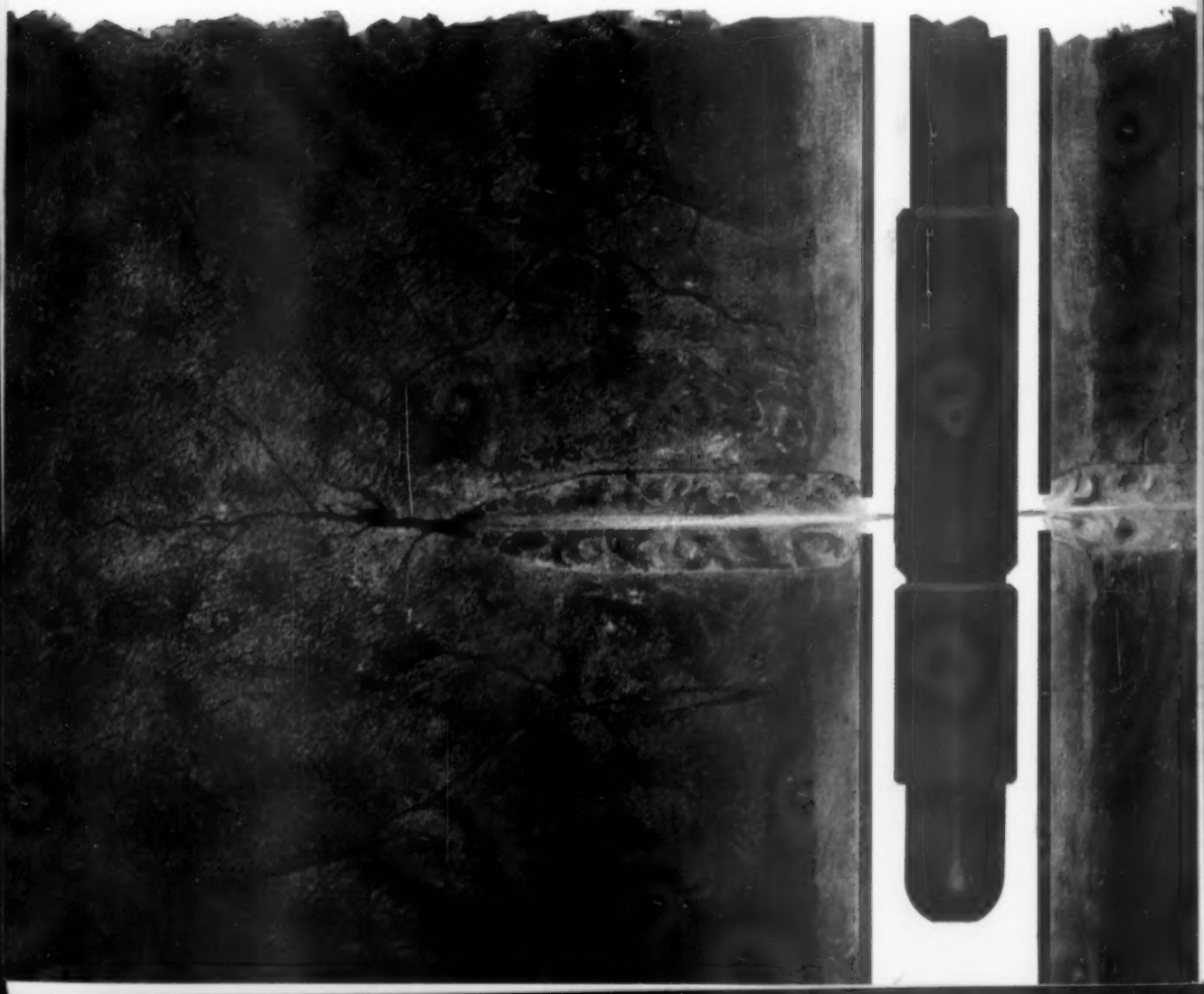
This cross-section illustration, as visualized by an engineer, shows a formation being notched with Abrasijet* — the Dowell-developed abrasive jetting service. The drawing was based on tests in which formation samples were notched with Abrasijet.

Notice the large surface area exposed by the notch. Notching with Abrasijet is an important starting point for recently-introduced frac design techniques. Abrasijet is also used for difficult perforating, vertical slotting of casing and cleaning open holes.

Results from hundreds of wells notched with Abrasijet and fractured by Dowell have been excellent, compared with similar wells fractured after perforating with explosives. Injection pressures required for fracturing have been lowered. Production increases have been outstanding. Gas/oil or water/oil ratios were improved. Occasionally, results from Abrasijet alone have been so good that fracturing was not required.

Ask your Dowell representative about Abrasijet. Dowell services and products are offered from more than 150 offices and stations in the United States, Canada, Venezuela, Argentina, Germany, France and the Sahara area. Dowell, Tulsa 1, Oklahoma.

*DOWELL SERVICE MARK

SERVICES FOR THE OIL INDUSTRY **DOWELL**

DIVISION OF THE DOW CHEMICAL COMPANY